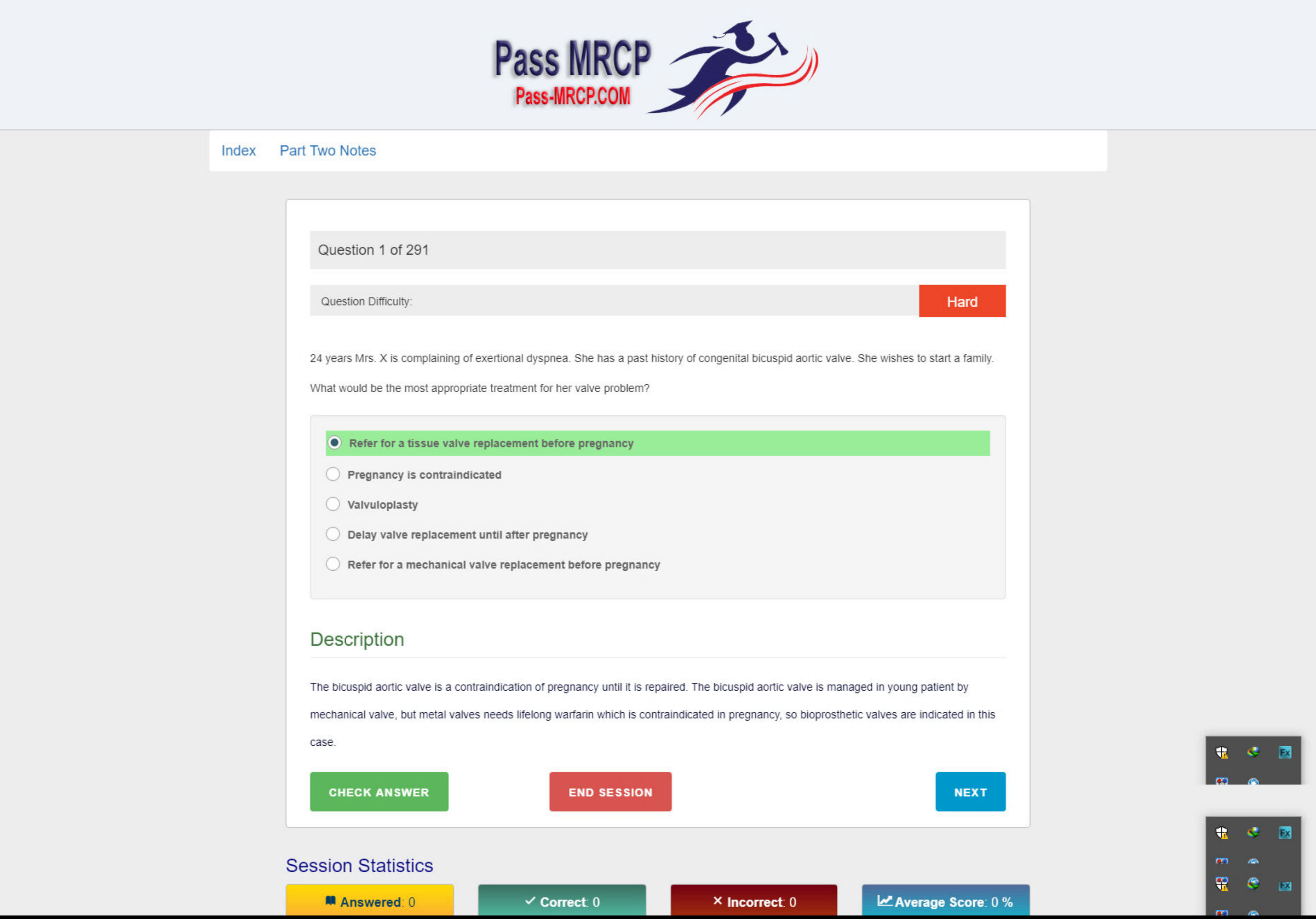
Pass MRCP
Pass-MRCP.COM
Index
Part Two Notes

Question 1 of 291

Question Difficulty: **Hard**

24 years Mrs. X is complaining of exertional dyspnea. She has a past history of congenital bicuspid aortic valve. She wishes to start a family.

What would be the most appropriate treatment for her valve problem?

- ● **Refer for a tissue valve replacement before pregnancy**
- ○ **Pregnancy is contraindicated**
- ○ **Valvuloplasty**
- ○ **Delay valve replacement until after pregnancy**
- ○ **Refer for a mechanical valve replacement before pregnancy**

Description

The bicuspid aortic valve is a contraindication of pregnancy until it is repaired. The bicuspid aortic valve is managed in young patient by mechanical valve, but metal valves needs lifelong warfarin which is contraindicated in pregnancy, so bioprosthetic valves are indicated in this case.

CHECK ANSWER
END SESSION
NEXT

Session Statistics

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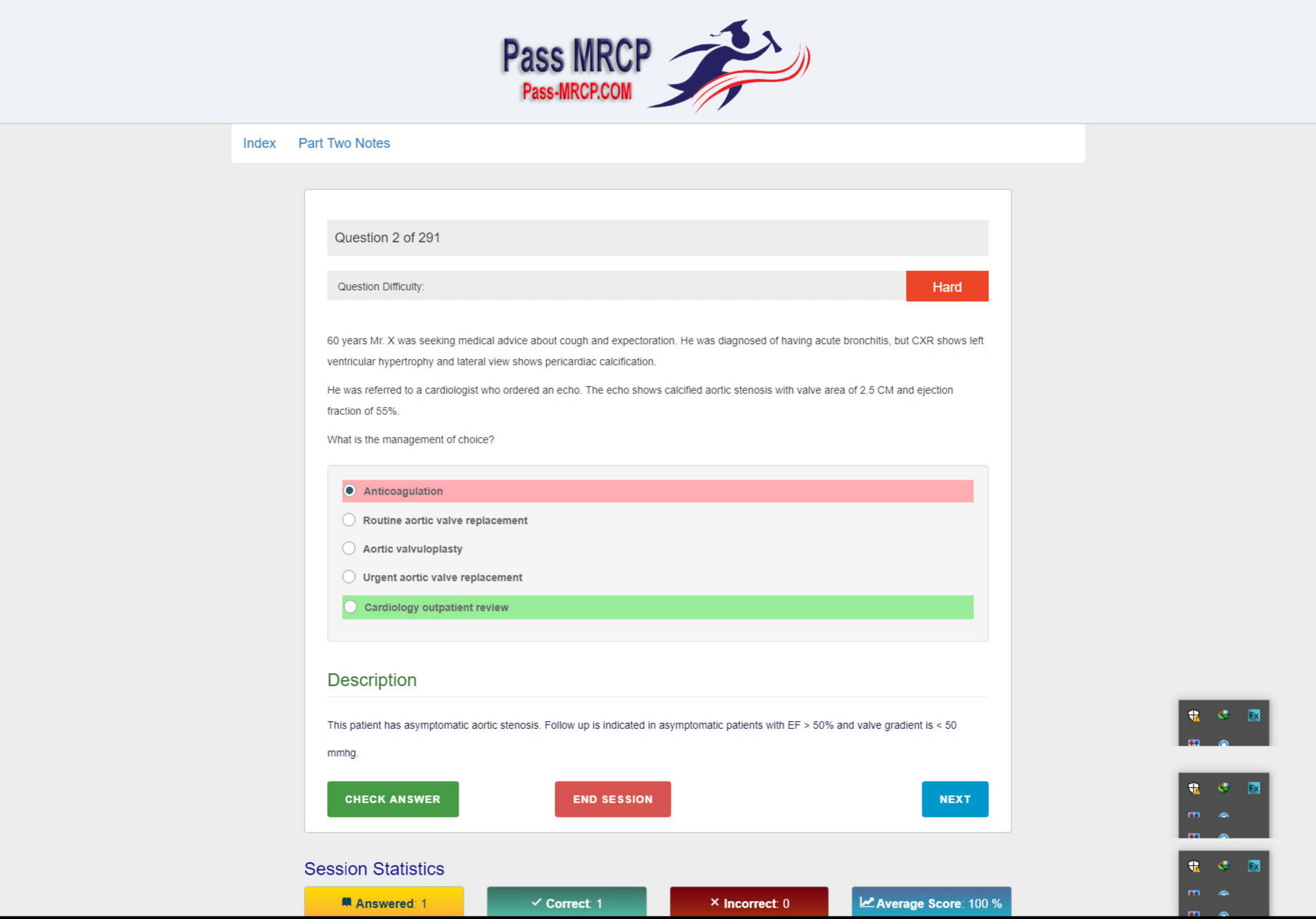
✓ Correct: 0
✕ Incorrect: 0
Average Score: 0 %



Question 2 of 291

Question Difficulty: **Hard**

60 years Mr. X was seeking medical advice about cough and expectoration. He was diagnosed of having acute bronchitis, but CXR shows left ventricular hypertrophy and lateral view shows pericardiac calcification.

He was referred to a cardiologist who ordered an echo. The echo shows calcified aortic stenosis with valve area of 2.5 CM and ejection fraction of 55%.

What is the management of choice?

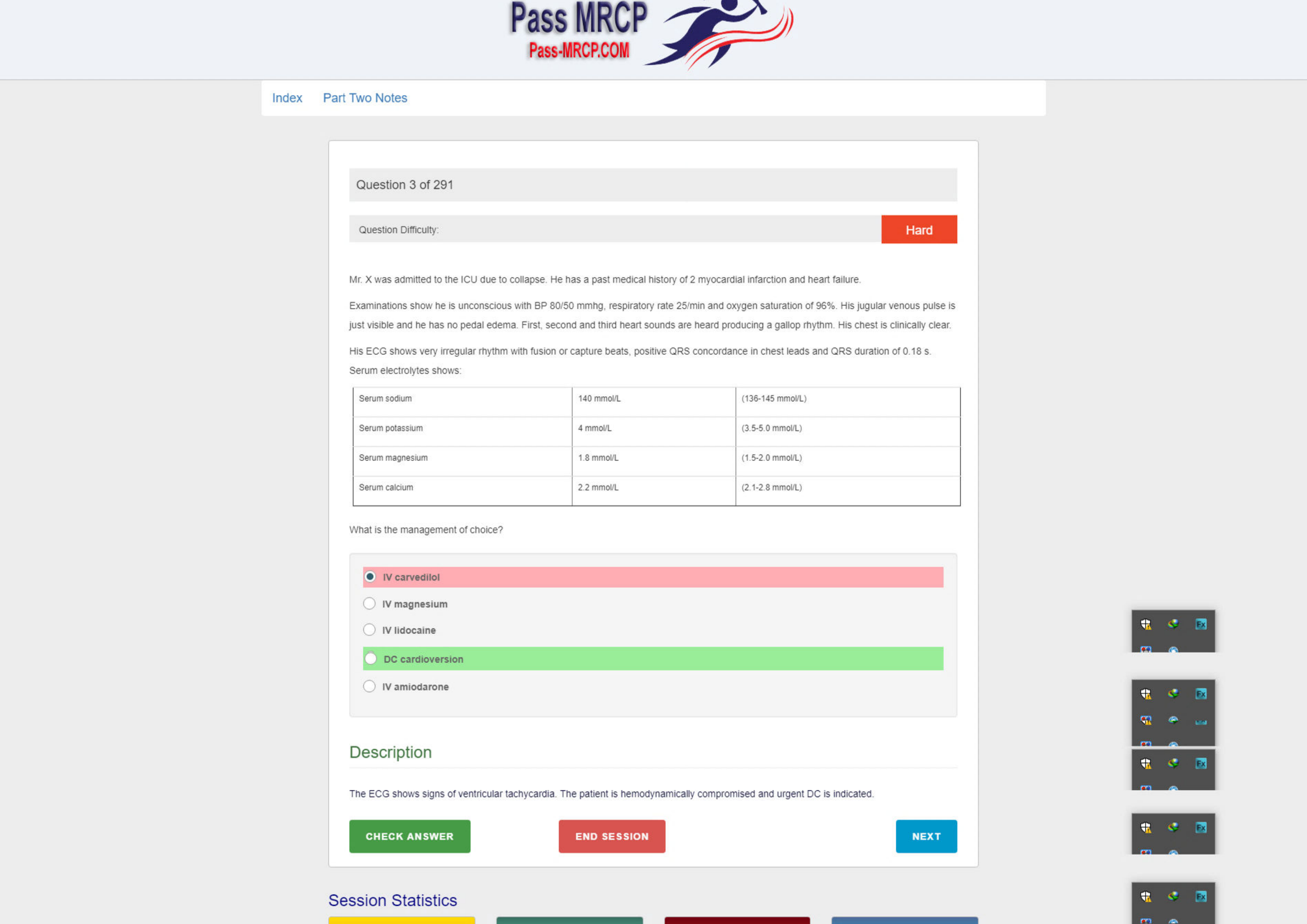
- ● **Anticoagulation**
- ○ **Routine aortic valve replacement**
- ○ **Aortic valvuloplasty**
- ○ **Urgent aortic valve replacement**
- ○ **Cardiology outpatient review**

Description

This patient has asymptomatic aortic stenosis. Follow up is indicated in asymptomatic patients with EF > 50% and valve gradient is < 50 mmhg.

Session Statistics

Answered: 1
✓ Correct: 1
✕ Incorrect: 0
Average Score: 100 %



Question 3 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the ICU due to collapse. He has a past medical history of 2 myocardial infarction and heart failure.

Examinations show he is unconscious with BP 80/50 mmhg, respiratory rate 25/min and oxygen saturation of 96%. His jugular venous pulse is just visible and he has no pedal edema. First, second and third heart sounds are heard producing a gallop rhythm. His chest is clinically clear.

His ECG shows very irregular rhythm with fusion or capture beats, positive QRS concordance in chest leads and QRS duration of 0.18 s.

Serum electrolytes shows:

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4 mmol/L	(3.5-5.0 mmol/L)
Serum magnesium	1.8 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.2 mmol/L	(2.1-2.8 mmol/L)

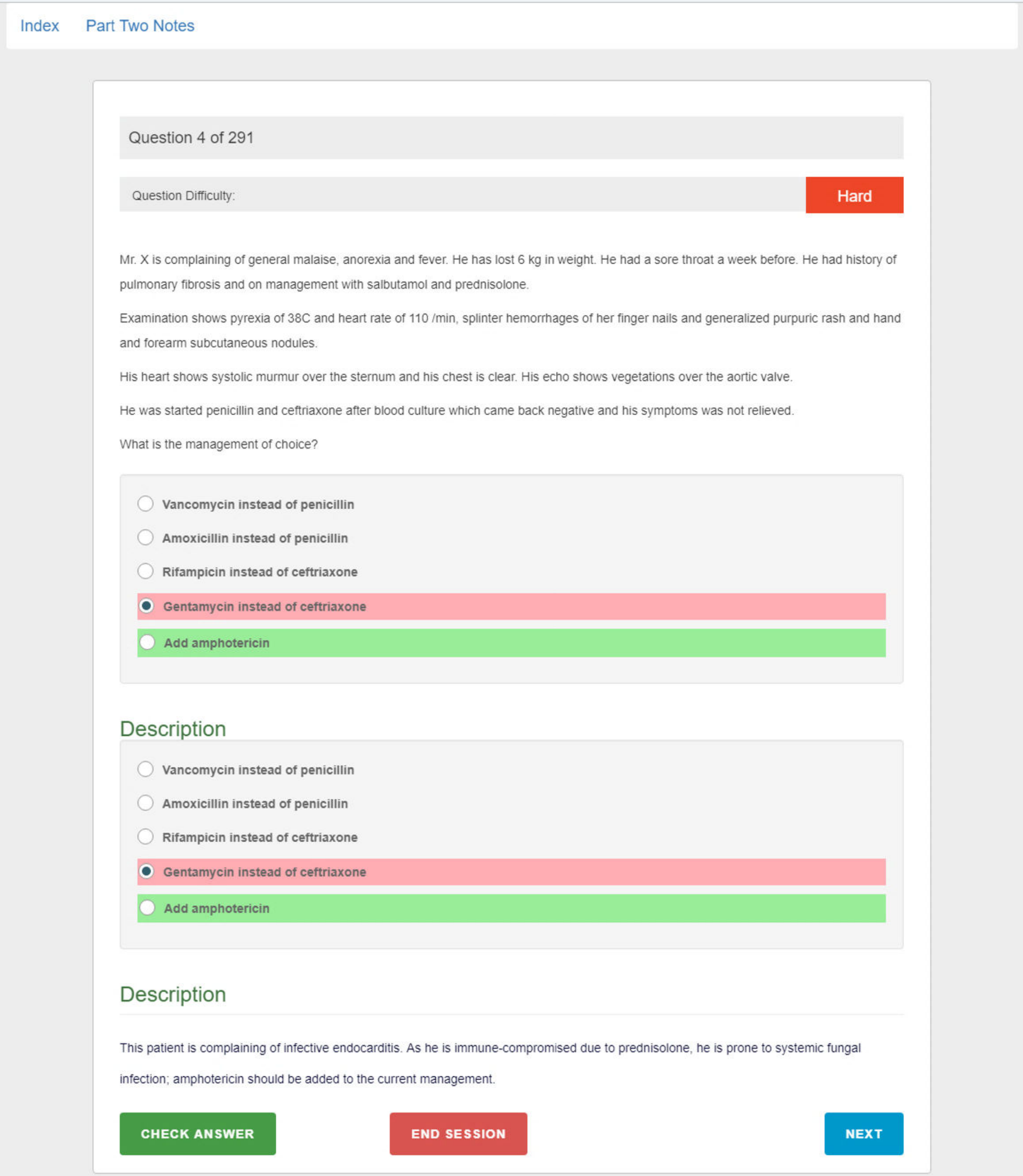
What is the management of choice?

- ● **IV carvedilol**
- ○ **IV magnesium**
- ○ **IV lidocaine**
- ○ **DC cardioversion**
- ○ **IV amiodarone**

Description

The ECG shows signs of ventricular tachycardia. The patient is hemodynamically compromised and urgent DC is indicated.

Session Statistics



Question 4 of 291

Question Difficulty: Hard

Mr. X is complaining of general malaise, anorexia and fever. He has lost 6 kg in weight. He had a sore throat a week before. He had history of pulmonary fibrosis and on management with salbutamol and prednisolone.

Examination shows pyrexia of 38C and heart rate of 110 /min, splinter hemorrhages of her finger nails and generalized purpuric rash and hand and forearm subcutaneous nodules.

His heart shows systolic murmur over the sternum and his chest is clear. His echo shows vegetations over the aortic valve.

He was started penicillin and ceftriaxone after blood culture which came back negative and his symptoms was not relieved.

What is the management of choice?

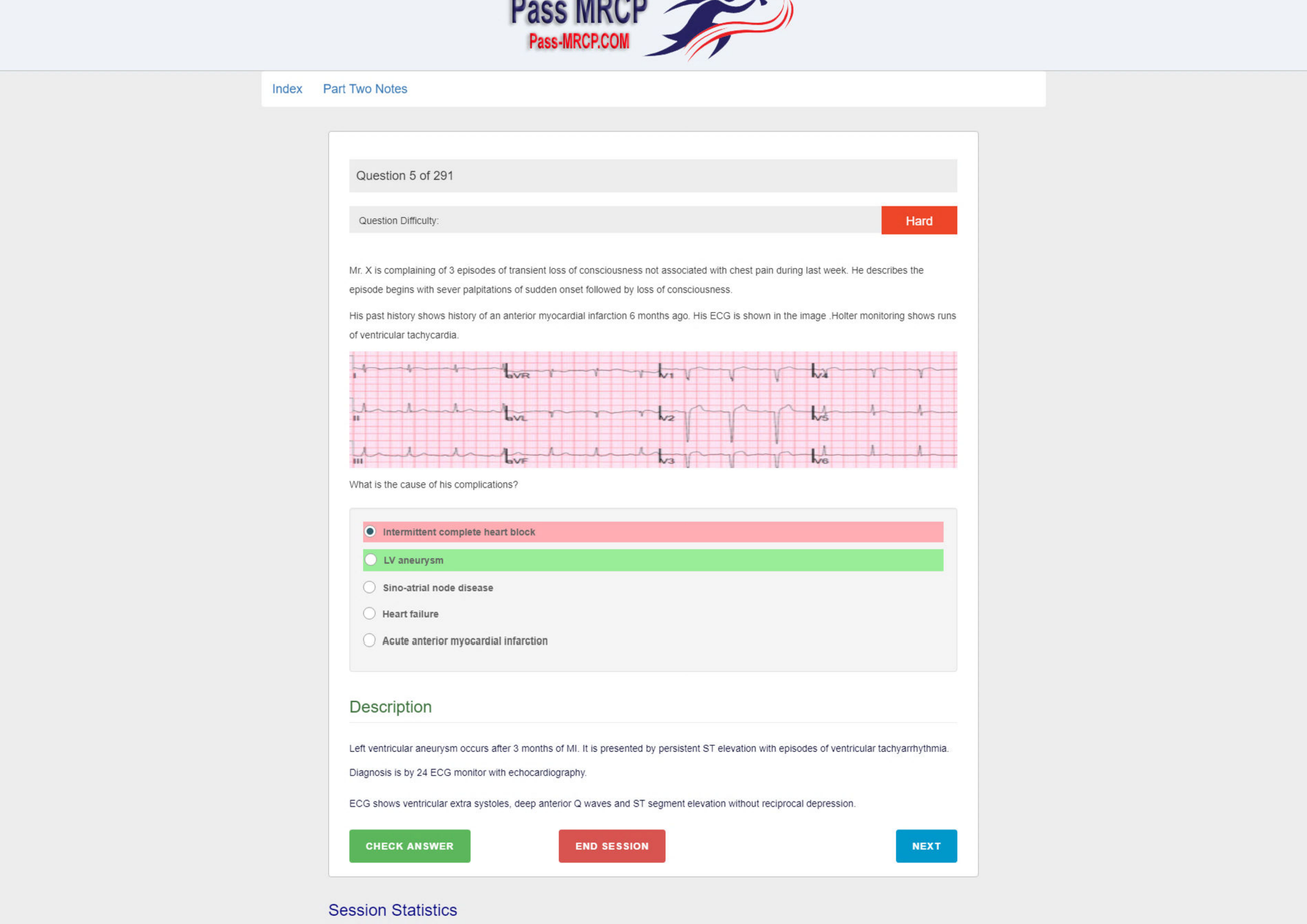
- ○ **Vancomycin instead of penicillin**
- ○ **Amoxicillin instead of penicillin**
- ○ **Rifampicin instead of ceftriaxone**
- ● **Gentamycin instead of ceftriaxone**
- ○ **Add amphotericin**

Description

- ○ **Vancomycin instead of penicillin**
- ○ **Amoxicillin instead of penicillin**
- ○ **Rifampicin instead of ceftriaxone**
- ● **Gentamycin instead of ceftriaxone**
- ○ **Add amphotericin**

Description

This patient is complaining of infective endocarditis. As he is immune-compromised due to prednisolone, he is prone to systemic fungal infection; amphotericin should be added to the current management.



Question 5 of 291

Question Difficulty: **Hard**

Mr. X is complaining of 3 episodes of transient loss of consciousness not associated with chest pain during last week. He describes the episode begins with sever palpitations of sudden onset followed by loss of consciousness.

His past history shows history of an anterior myocardial infarction 6 months ago. His ECG is shown in the image .Holter monitoring shows runs of ventricular tachycardia.

What is the cause of his complications?

- ● **Intermittent complete heart block**
- ○ **LV aneurysm**
- ○ **Sino-atrial node disease**
- ○ **Heart failure**
- ○ **Acute anterior myocardial infarction**

Description

Left ventricular aneurysm occurs after 3 months of MI. It is presented by persistent ST elevation with episodes of ventricular tachyarrhythmia.

Diagnosis is by 24 ECG monitor with echocardiography.

ECG shows ventricular extra systoles, deep anterior Q waves and ST segment elevation without reciprocal depression.

Session Statistics

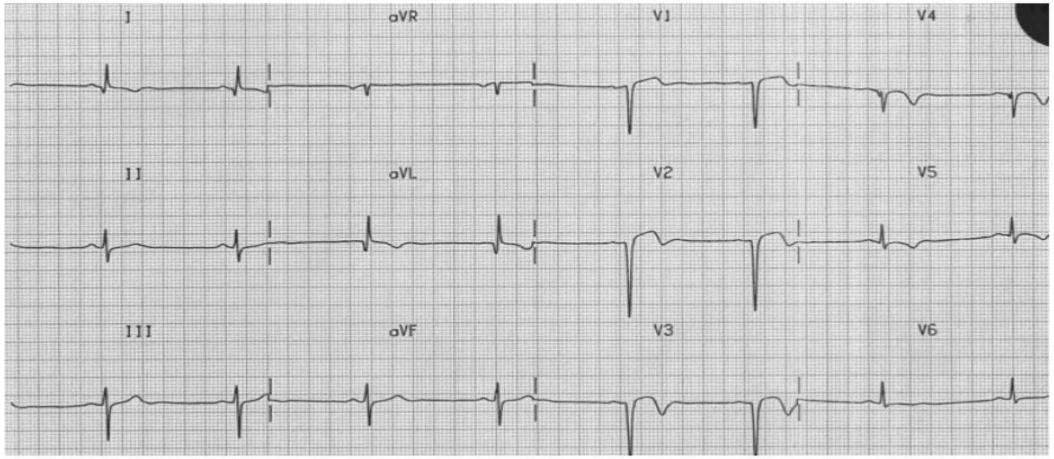
Index Part Two Notes

Question 6 of 291

Question Difficulty: **Hard**

Mr. X the 50 years old was admitted to the emergency room due to central crushing chest pain which started 1 hour ago. He describes the pain is radiated to his jaws.

His ECG shows in the following image.



Which coronary artery is usually obstructed?

○ Right coronary artery

● Right posterior descending artery

○ Left main stem artery

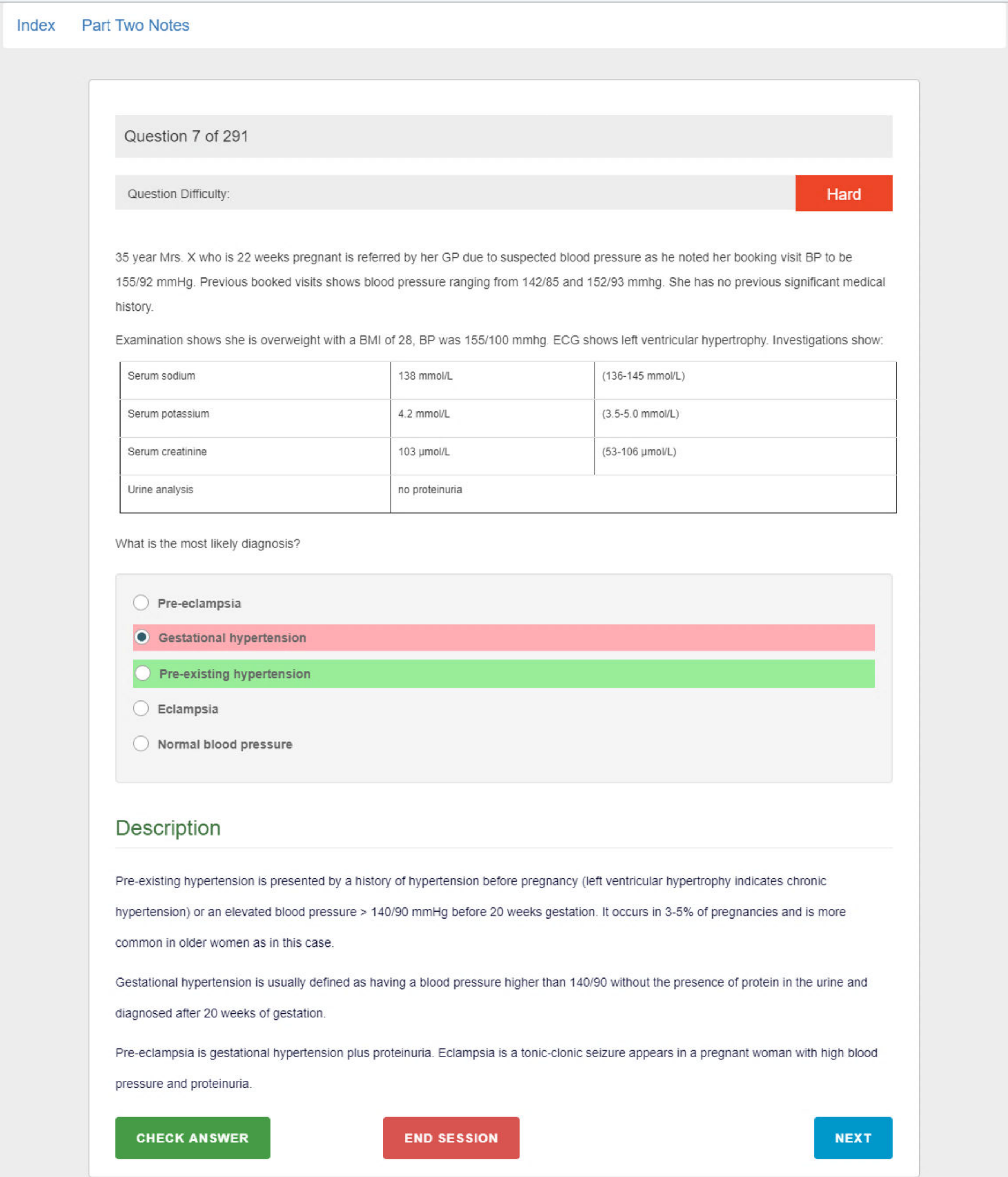
○ Left anterior descending artery

○ Left circumflex artery

Description

Left anterior descending artery obstruction causes anteroseptal MI which causes ST elevation in V1-V4 as in the image.

CHECK ANSWER END SESSION NEXT



Question 7 of 291

Question Difficulty:

35 year Mrs. X who is 22 weeks pregnant is referred by her GP due to suspected blood pressure as he noted her booking visit BP to be 155/92 mmHg. Previous booked visits shows blood pressure ranging from 142/85 and 152/93 mmhg. She has no previous significant medical history.

Examination shows she is overweight with a BMI of 28, BP was 155/100 mmhg. ECG shows left ventricular hypertrophy. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	103 µmol/L	(53-106 µmol/L)
Urine analysis	no proteinuria	

What is the most likely diagnosis?

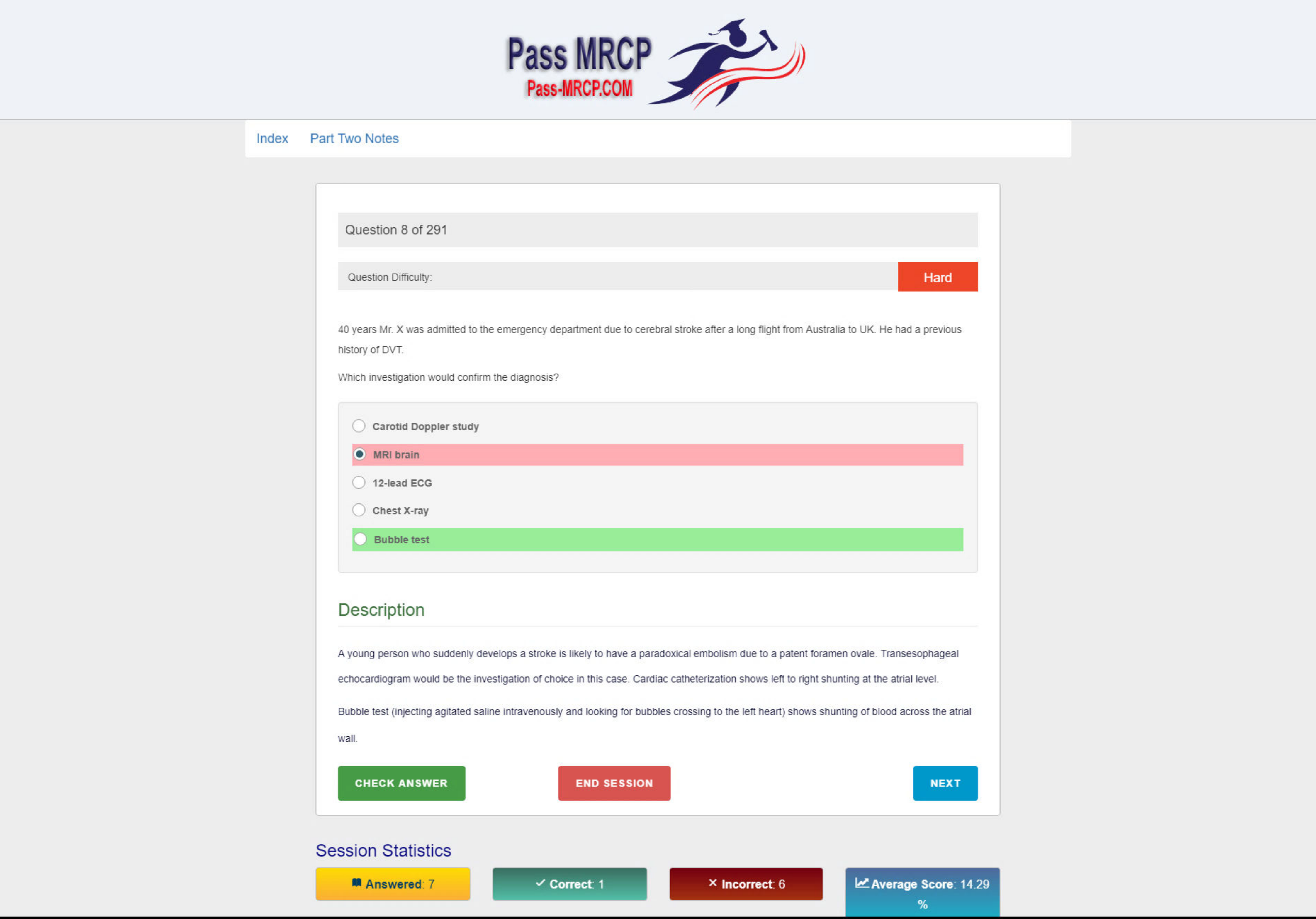
- ○ **Pre-eclampsia**
- ● **Gestational hypertension**
- ○ **Pre-existing hypertension**
- ○ **Eclampsia**
- ○ **Normal blood pressure**

Description

Pre-existing hypertension is presented by a history of hypertension before pregnancy (left ventricular hypertrophy indicates chronic hypertension) or an elevated blood pressure > 140/90 mmHg before 20 weeks gestation. It occurs in 3-5% of pregnancies and is more common in older women as in this case.

Gestational hypertension is usually defined as having a blood pressure higher than 140/90 without the presence of protein in the urine and diagnosed after 20 weeks of gestation.

Pre-eclampsia is gestational hypertension plus proteinuria. Eclampsia is a tonic-clonic seizure appears in a pregnant woman with high blood pressure and proteinuria.



Question 8 of 291

Question Difficulty: **Hard**

40 years Mr. X was admitted to the emergency department due to cerebral stroke after a long flight from Australia to UK. He had a previous history of DVT.

Which investigation would confirm the diagnosis?

- ○ **Carotid Doppler study**
- ● **MRI brain**
- ○ **12-lead ECG**
- ○ **Chest X-ray**
- ○ **Bubble test**

Description

A young person who suddenly develops a stroke is likely to have a paradoxical embolism due to a patent foramen ovale. Transesophageal echocardiogram would be the investigation of choice in this case. Cardiac catheterization shows left to right shunting at the atrial level.

Bubble test (injecting agitated saline intravenously and looking for bubbles crossing to the left heart) shows shunting of blood across the atrial wall.

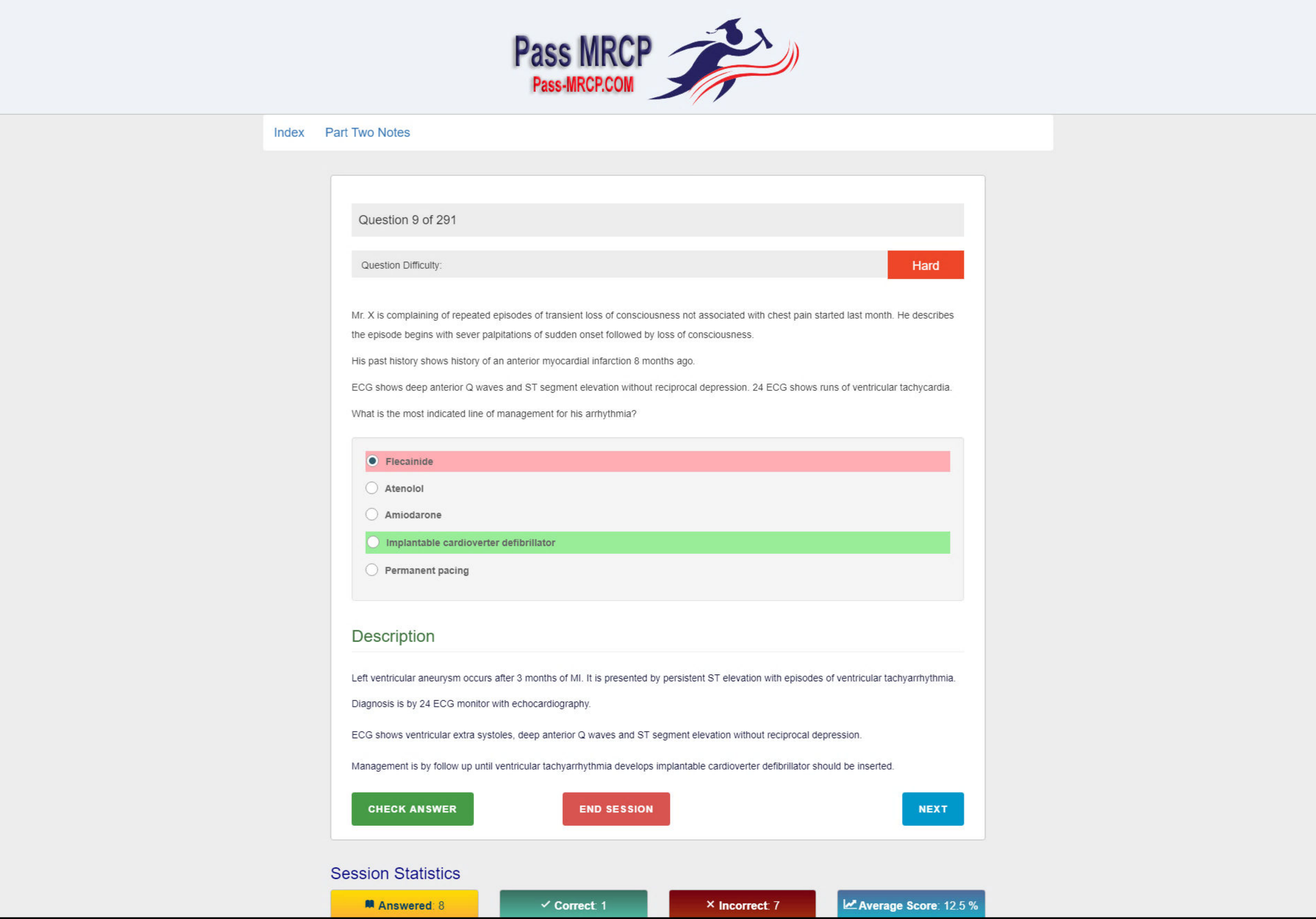
Session Statistics

Answered: 7

✓ **Correct**: 1

× **Incorrect**: 6

Average Score: 14.29 %



Question 9 of 291

Question Difficulty: **Hard**

Mr. X is complaining of repeated episodes of transient loss of consciousness not associated with chest pain started last month. He describes the episode begins with sever palpitations of sudden onset followed by loss of consciousness.

His past history shows history of an anterior myocardial infarction 8 months ago.

ECG shows deep anterior Q waves and ST segment elevation without reciprocal depression. 24 ECG shows runs of ventricular tachycardia.

What is the most indicated line of management for his arrhythmia?

- ● **Flecainide**
- ○ **Atenolol**
- ○ **Amiodarone**
- ○ **Implantable cardioverter defibrillator**
- ○ **Permanent pacing**

Description

Left ventricular aneurysm occurs after 3 months of MI. It is presented by persistent ST elevation with episodes of ventricular tachyarrhythmia.

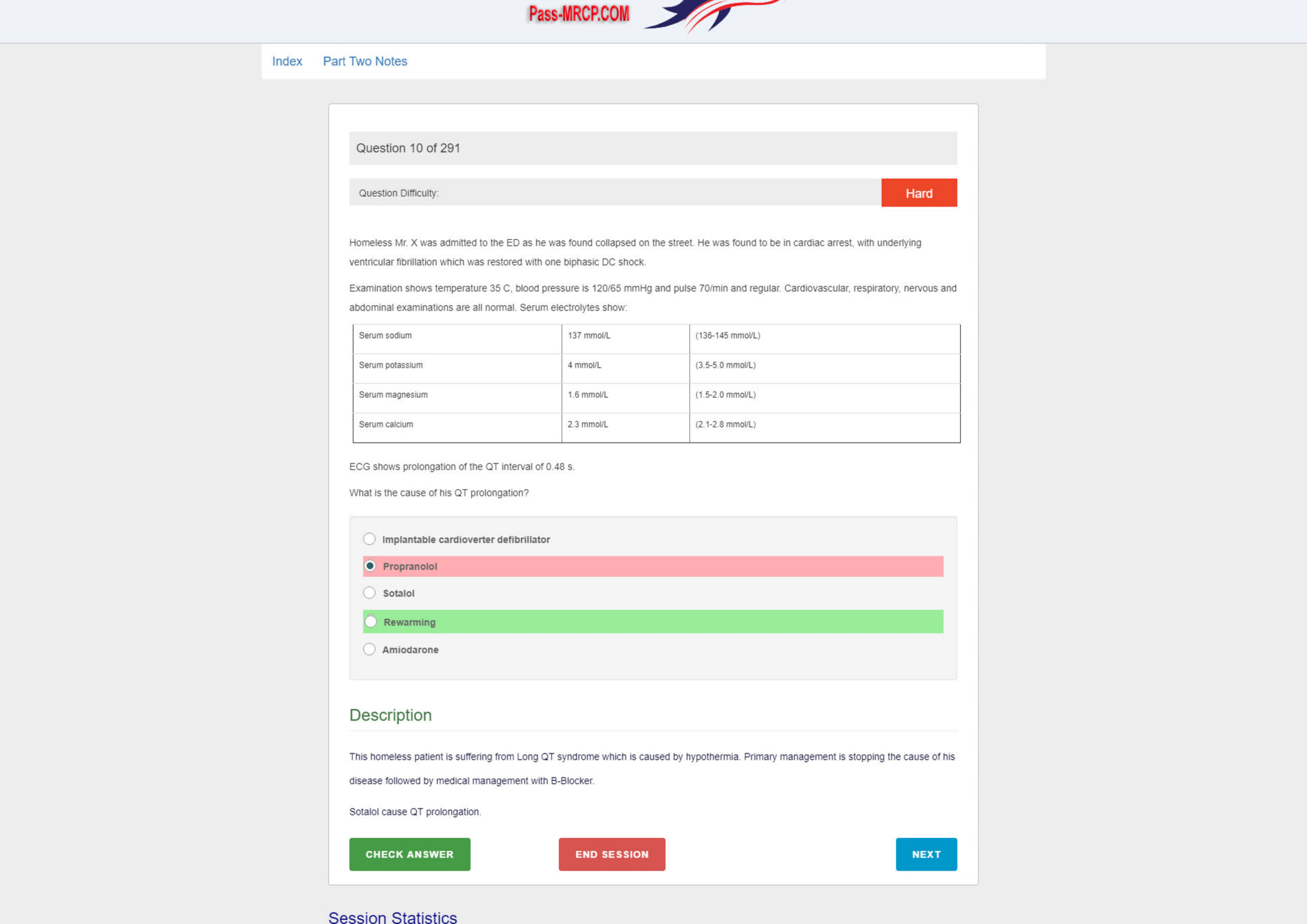
Diagnosis is by 24 ECG monitor with echocardiography.

ECG shows ventricular extra systoles, deep anterior Q waves and ST segment elevation without reciprocal depression.

Management is by follow up until ventricular tachyarrhythmia develops implantable cardioverter defibrillator should be inserted.

Session Statistics

Answered: 8 | **Correct**: 1 | **Incorrect**: 7 | **Average Score**: 12.5 %



Question 10 of 291

Question Difficulty: **Hard**

Homeless Mr. X was admitted to the ED as he was found collapsed on the street. He was found to be in cardiac arrest, with underlying ventricular fibrillation which was restored with one biphasic DC shock.

Examination shows temperature 35 C, blood pressure is 120/65 mmHg and pulse 70/min and regular. Cardiovascular, respiratory, nervous and abdominal examinations are all normal. Serum electrolytes show:

Serum sodium	137 mmol/L	(136-145 mmol/L)
Serum potassium	4 mmol/L	(3.5-5.0 mmol/L)
Serum magnesium	1.6 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)

ECG shows prolongation of the QT interval of 0.48 s.

What is the cause of his QT prolongation?

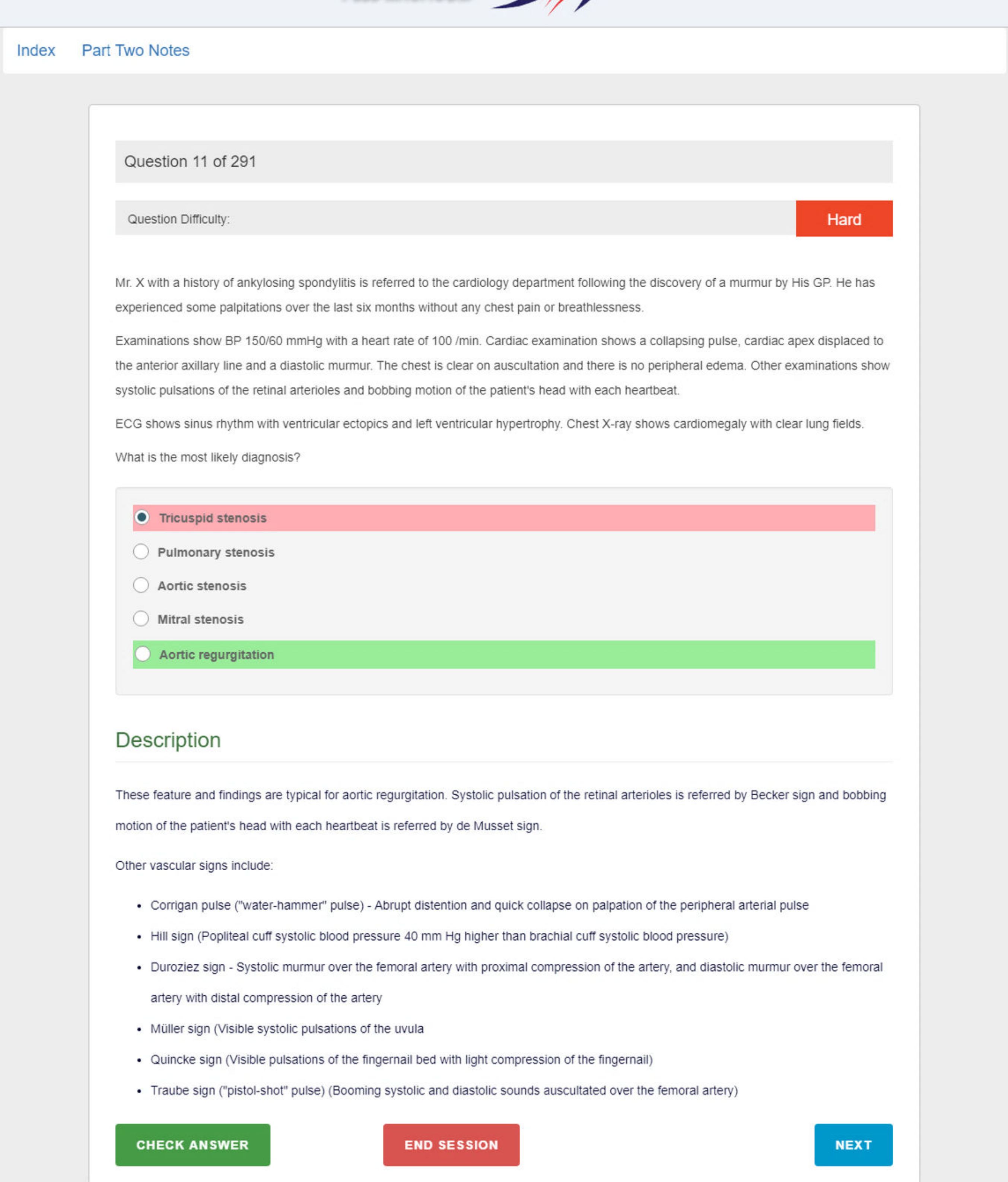
- ○ **Implantable cardioverter defibrillator**
- ● **Propranolol**
- ○ **Sotalol**
- ○ **Rewarming**
- ○ **Amiodarone**

Description

This homeless patient is suffering from Long QT syndrome which is caused by hypothermia. Primary management is stopping the cause of his disease followed by medical management with B-Blocker.

Sotalol cause QT prolongation.

Session Statistics



Question 11 of 291

Question Difficulty: **Hard**

Mr. X with a history of ankylosing spondylitis is referred to the cardiology department following the discovery of a murmur by His GP. He has experienced some palpitations over the last six months without any chest pain or breathlessness.

Examinations show BP 150/60 mmHg with a heart rate of 100 /min. Cardiac examination shows a collapsing pulse, cardiac apex displaced to the anterior axillary line and a diastolic murmur. The chest is clear on auscultation and there is no peripheral edema. Other examinations show systolic pulsations of the retinal arterioles and bobbing motion of the patient's head with each heartbeat.

ECG shows sinus rhythm with ventricular ectopics and left ventricular hypertrophy. Chest X-ray shows cardiomegaly with clear lung fields.

What is the most likely diagnosis?

● **Tricuspid stenosis**
○ **Pulmonary stenosis**
○ **Aortic stenosis**
○ **Mitral stenosis**
○ **Aortic regurgitation**

Description

These feature and findings are typical for aortic regurgitation. Systolic pulsation of the retinal arterioles is referred by Becker sign and bobbing motion of the patient's head with each heartbeat is referred by de Musset sign.

Other vascular signs include:

- Corrigan pulse ("water-hammer" pulse) - Abrupt distention and quick collapse on palpation of the peripheral arterial pulse
- Hill sign (Popliteal cuff systolic blood pressure 40 mm Hg higher than brachial cuff systolic blood pressure)
- Duroziez sign - Systolic murmur over the femoral artery with proximal compression of the artery, and diastolic murmur over the femoral artery with distal compression of the artery
- Müller sign (Visible systolic pulsations of the uvula
- Quincke sign (Visible pulsations of the fingernail bed with light compression of the fingernail)
- Traube sign ("pistol-shot" pulse) (Booming systolic and diastolic sounds auscultated over the femoral artery)

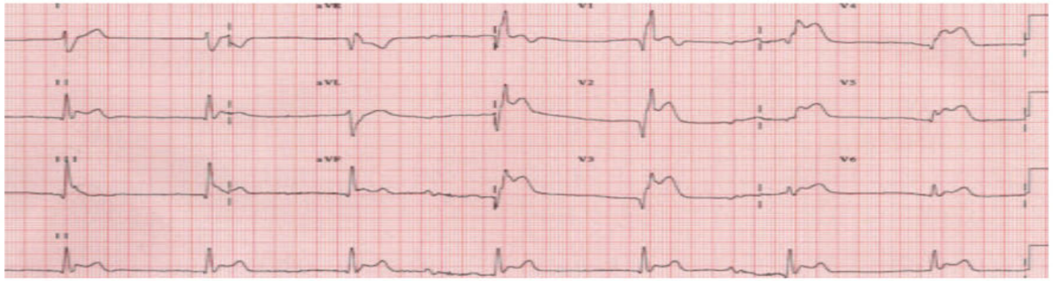
Question 12 of 291

Question Difficulty: **Hard**

Mr. X is complaining of severe chest pain 10 days after discharge from hospital due to myocardial infarction. He describes the pain is sharp retro-sternal and worse on inspiration and lying down.

His current medical treatment includes carvedilol, captopril, clopidogrel and omeprazole.

Examination shows he is calm, regular heart rate of 70/minute, respiratory rate 15/minute, fever 38.5 c and irregular heart sound over the sternum. ECG is shown in the image. Chest X-ray is normal as well as cardiac catheterization.



What is the management of choice?

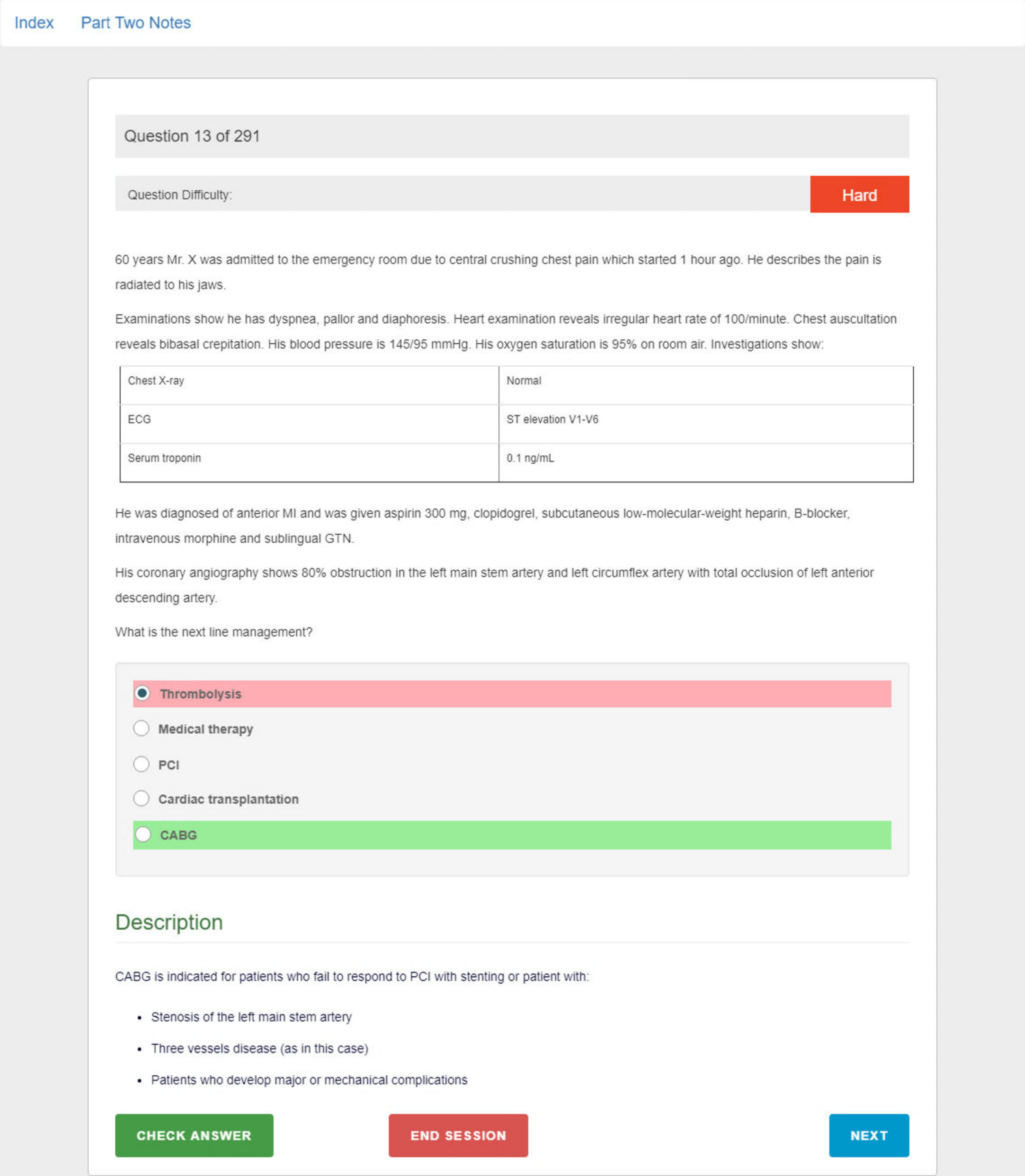
- ● **Corticosteroids**
- ○ **Ibuprofen**
- ○ **Refer for PCI**
- ○ **Thrombolysis**
- ○ **Change clopidogrel to aspirin**

Description

This patient is complaining of Dressler syndrome which is an acute pericarditis that occurs 2-6 weeks following a MI. It is characterized by a combination of fever, pleuritic pain, widespread ST elevation on ECG and a raised ESR.

NSAIDs are the management of choice; corticosteroids are used in patients with severe symptoms or NSAIDs are contraindicated (as in this case as he is commencing omeprazole) or insufficient.

CHECK ANSWER **END SESSION** **NEXT**



Question 13 of 291

Question Difficulty: **Hard**

60 years Mr. X was admitted to the emergency room due to central crushing chest pain which started 1 hour ago. He describes the pain is radiated to his jaws.

Examinations show he has dyspnea, pallor and diaphoresis. Heart examination reveals irregular heart rate of 100/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 145/95 mmHg. His oxygen saturation is 95% on room air. Investigations show:

Chest X-ray	Normal
ECG	ST elevation V1-V6
Serum troponin	0.1 ng/mL

He was diagnosed of anterior MI and was given aspirin 300 mg, clopidogrel, subcutaneous low-molecular-weight heparin, B-blocker, intravenous morphine and sublingual GTN.

His coronary angiography shows 80% obstruction in the left main stem artery and left circumflex artery with total occlusion of left anterior descending artery.

What is the next line management?

● **Thrombolysis**

○ **Medical therapy**

○ **PCI**

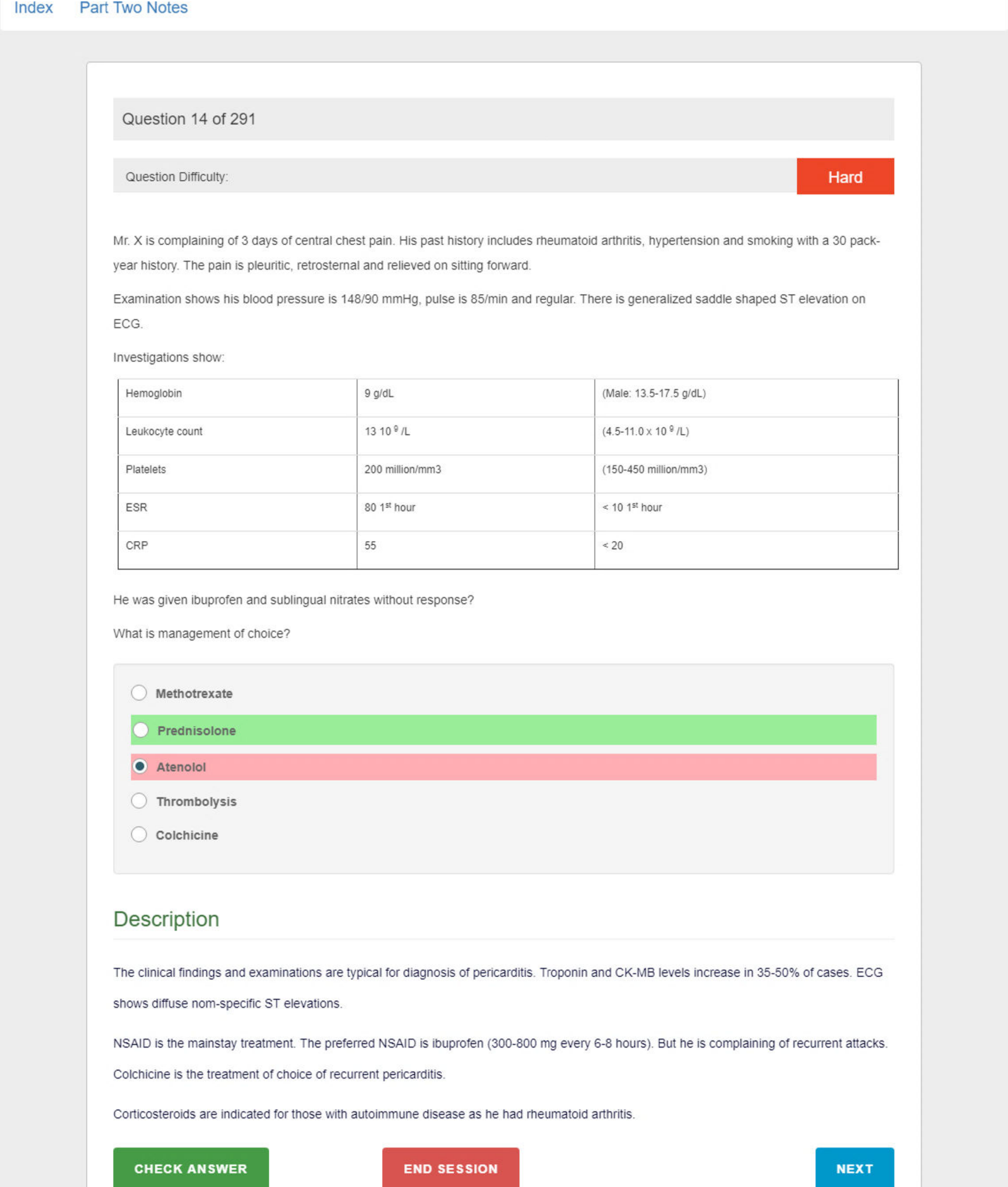
○ **Cardiac transplantation**

○ **CABG**

Description

CABG is indicated for patients who fail to respond to PCI with stenting or patient with:

- Stenosis of the left main stem artery
- Three vessels disease (as in this case)
- Patients who develop major or mechanical complications



Question 14 of 291

Question Difficulty: Hard

Mr. X is complaining of 3 days of central chest pain. His past history includes rheumatoid arthritis, hypertension and smoking with a 30 pack-year history. The pain is pleuritic, retrosternal and relieved on sitting forward.

Examination shows his blood pressure is 148/90 mmHg, pulse is 85/min and regular. There is generalized saddle shaped ST elevation on ECG.

Investigations show:

Hemoglobin	9 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	13 10^9 /L	(4.5-11.0 x 10^9 /L)
Platelets	200 million/mm3	(150-450 million/mm3)
ESR	80 1st hour	< 10 1st hour
CRP	55	< 20

He was given ibuprofen and sublingual nitrates without response?

What is management of choice?

○ Methotrexate

○ Prednisolone

● Atenolol

○ Thrombolysis

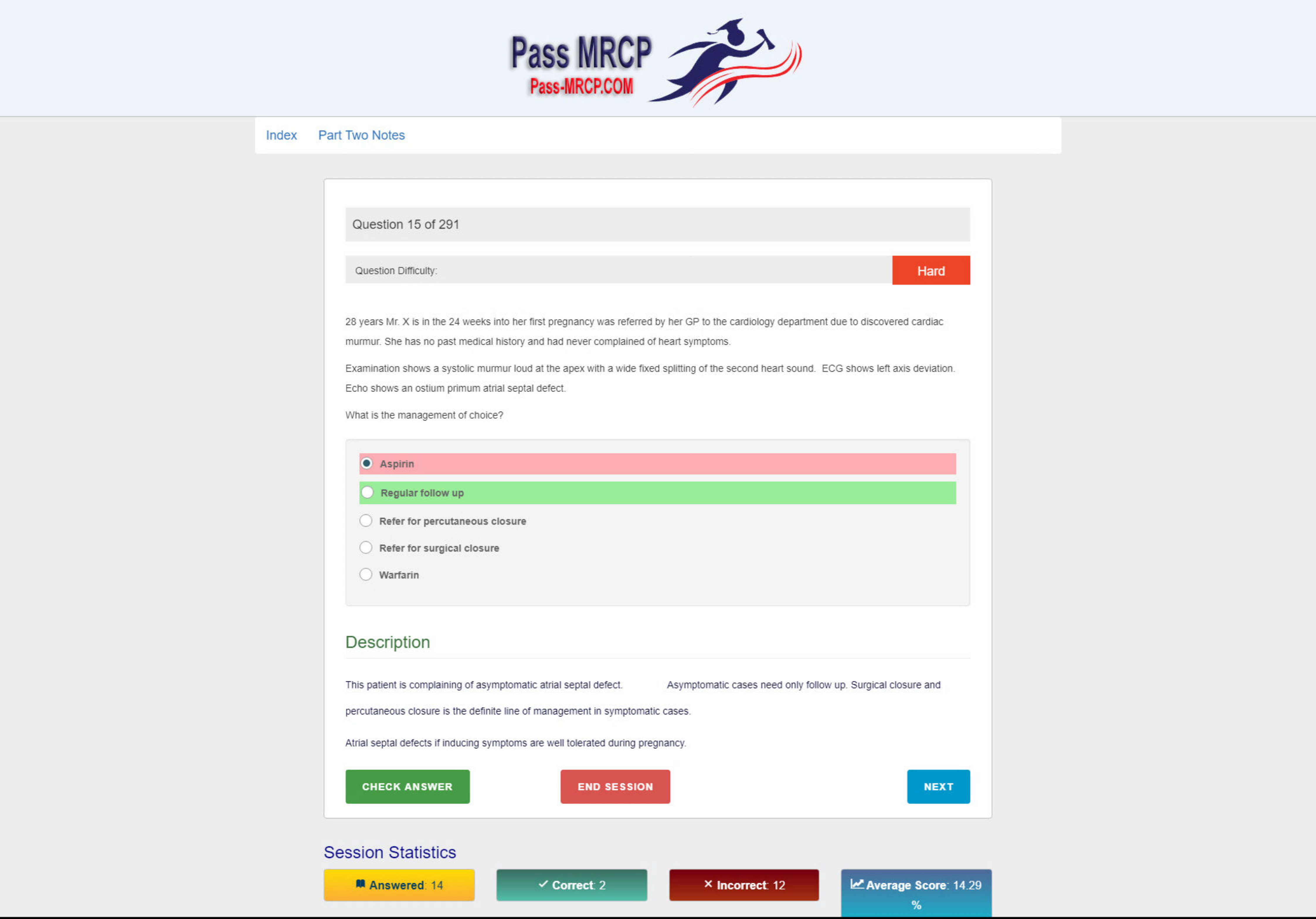
○ Colchicine

Description

The clinical findings and examinations are typical for diagnosis of pericarditis. Troponin and CK-MB levels increase in 35-50% of cases. ECG shows diffuse nom-specific ST elevations.

NSAID is the mainstay treatment. The preferred NSAID is ibuprofen (300-800 mg every 6-8 hours). But he is complaining of recurrent attacks. Colchicine is the treatment of choice of recurrent pericarditis.

Corticosteroids are indicated for those with autoimmune disease as he had rheumatoid arthritis.



Question 15 of 291

Question Difficulty: Hard

28 years Mr. X is in the 24 weeks into her first pregnancy was referred by her GP to the cardiology department due to discovered cardiac murmur. She has no past medical history and had never complained of heart symptoms.

Examination shows a systolic murmur loud at the apex with a wide fixed splitting of the second heart sound. ECG shows left axis deviation. Echo shows an ostium primum atrial septal defect.

What is the management of choice?

- ● **Aspirin**
- ○ **Regular follow up**
- ○ **Refer for percutaneous closure**
- ○ **Refer for surgical closure**
- ○ **Warfarin**

Description

This patient is complaining of asymptomatic atrial septal defect. Asymptomatic cases need only follow up. Surgical closure and percutaneous closure is the definite line of management in symptomatic cases.

Atrial septal defects if inducing symptoms are well tolerated during pregnancy.

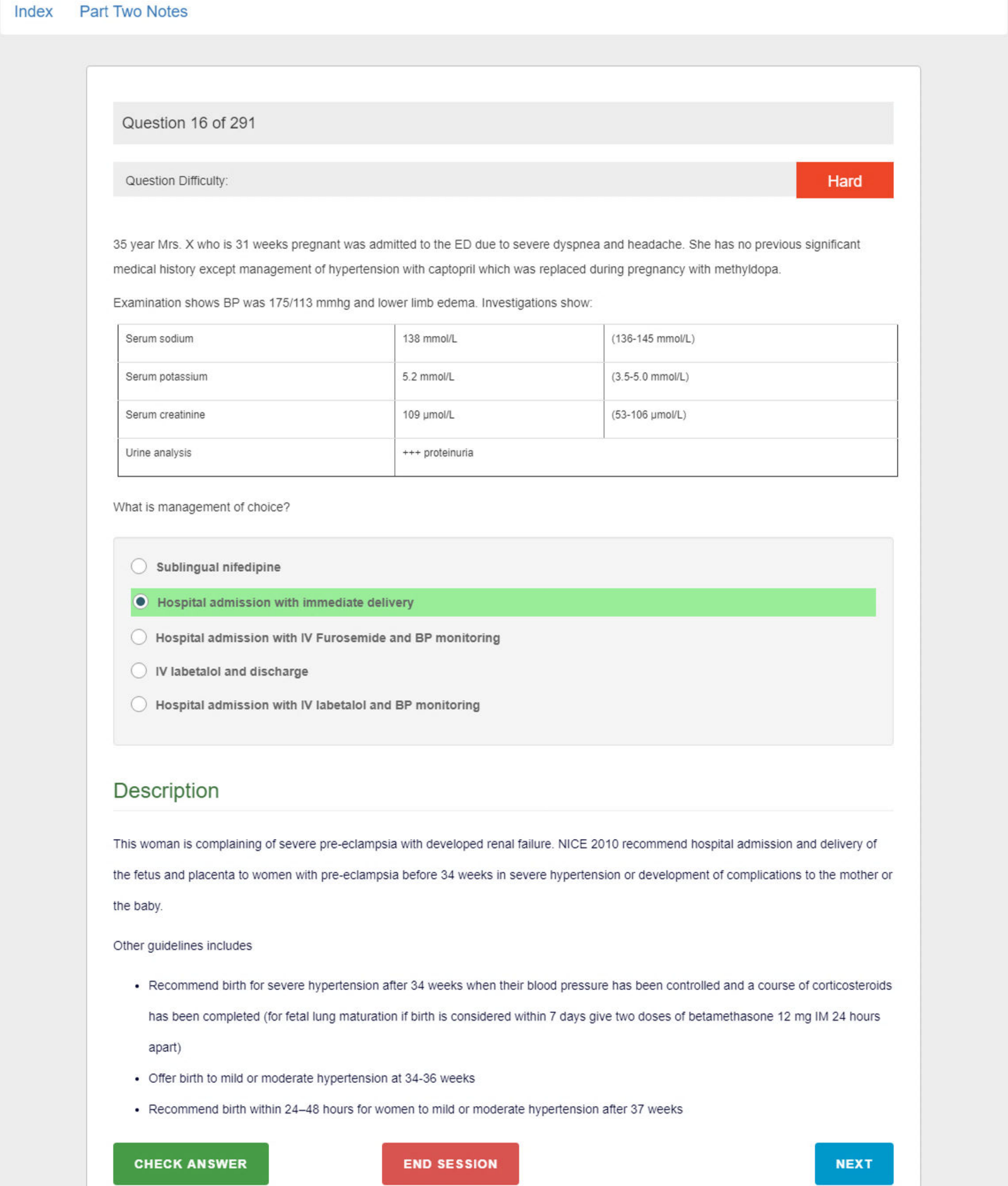
Session Statistics

Answered: 14

✓ **Correct**: 2

✕ **Incorrect**: 12

Average Score: 14.29 %



Question 16 of 291

Question Difficulty: **Hard**

35 year Mrs. X who is 31 weeks pregnant was admitted to the ED due to severe dyspnea and headache. She has no previous significant medical history except management of hypertension with captopril which was replaced during pregnancy with methyldopa.

Examination shows BP was 175/113 mmhg and lower limb edema. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	109 µmol/L	(53-106 µmol/L)
Urine analysis	+++ proteinuria	

What is management of choice?

○ **Sublingual nifedipine**

● **Hospital admission with immediate delivery**

○ **Hospital admission with IV Furosemide and BP monitoring**

○ **IV labetalol and discharge**

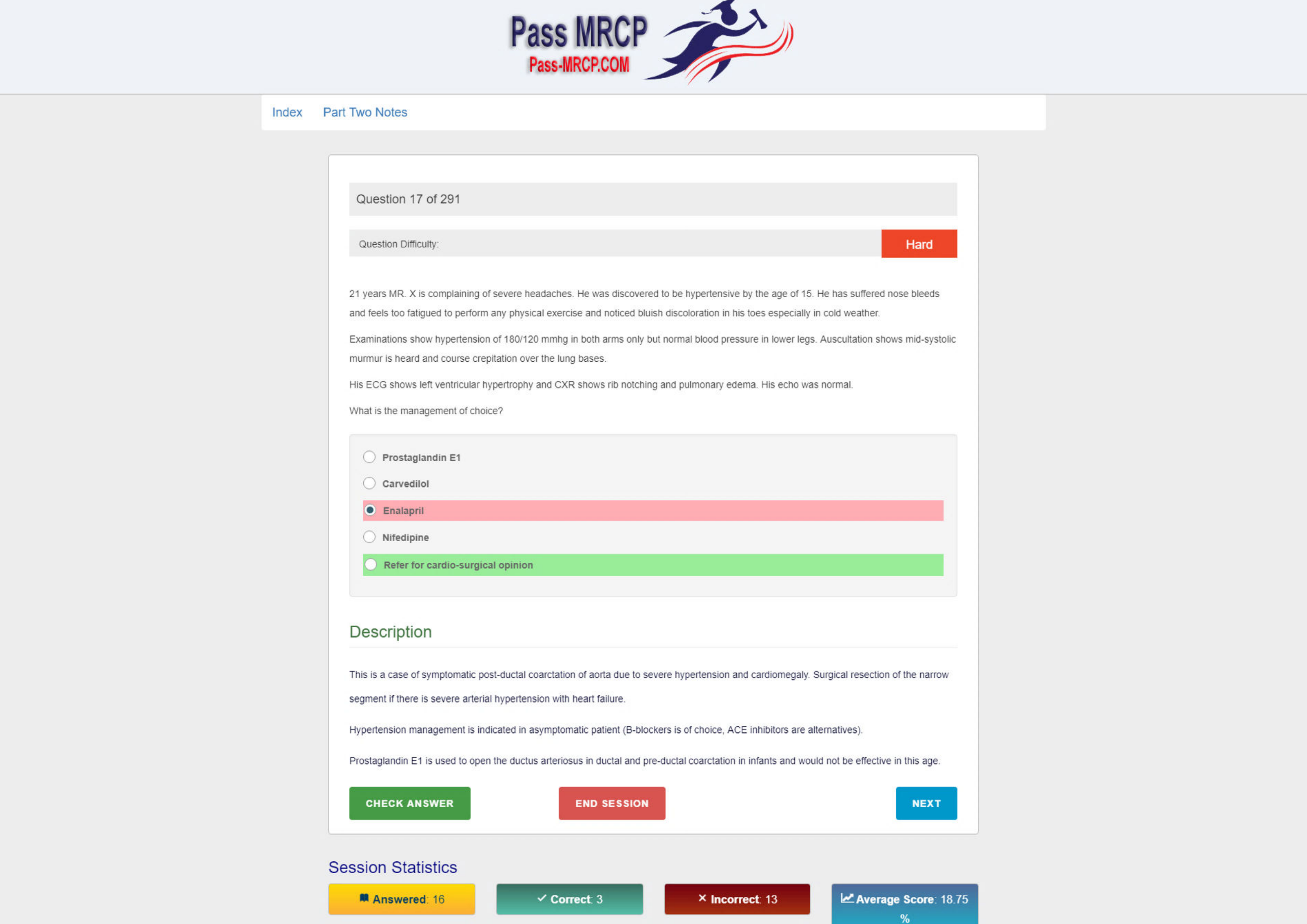
○ **Hospital admission with IV labetalol and BP monitoring**

Description

This woman is complaining of severe pre-eclampsia with developed renal failure. NICE 2010 recommend hospital admission and delivery of the fetus and placenta to women with pre-eclampsia before 34 weeks in severe hypertension or development of complications to the mother or the baby.

Other guidelines includes

- Recommend birth for severe hypertension after 34 weeks when their blood pressure has been controlled and a course of corticosteroids has been completed (for fetal lung maturation if birth is considered within 7 days give two doses of betamethasone 12 mg IM 24 hours apart)
- Offer birth to mild or moderate hypertension at 34-36 weeks
- Recommend birth within 24–48 hours for women to mild or moderate hypertension after 37 weeks



Question 17 of 291

Question Difficulty: **Hard**

21 years MR. X is complaining of severe headaches. He was discovered to be hypertensive by the age of 15. He has suffered nose bleeds and feels too fatigued to perform any physical exercise and noticed bluish discoloration in his toes especially in cold weather.

Examinations show hypertension of 180/120 mmhg in both arms only but normal blood pressure in lower legs. Auscultation shows mid-systolic murmur is heard and course crepitation over the lung bases.

His ECG shows left ventricular hypertrophy and CXR shows rib notching and pulmonary edema. His echo was normal.

What is the management of choice?

- ○ **Prostaglandin E1**
- ○ **Carvedilol**
- ● **Enalapril**
- ○ **Nifedipine**
- ○ **Refer for cardio-surgical opinion**

Description

This is a case of symptomatic post-ductal coarctation of aorta due to severe hypertension and cardiomegaly. Surgical resection of the narrow segment if there is severe arterial hypertension with heart failure.

Hypertension management is indicated in asymptomatic patient (B-blockers is of choice, ACE inhibitors are alternatives).

Prostaglandin E1 is used to open the ductus arteriosus in ductal and pre-ductal coarctation in infants and would not be effective in this age.

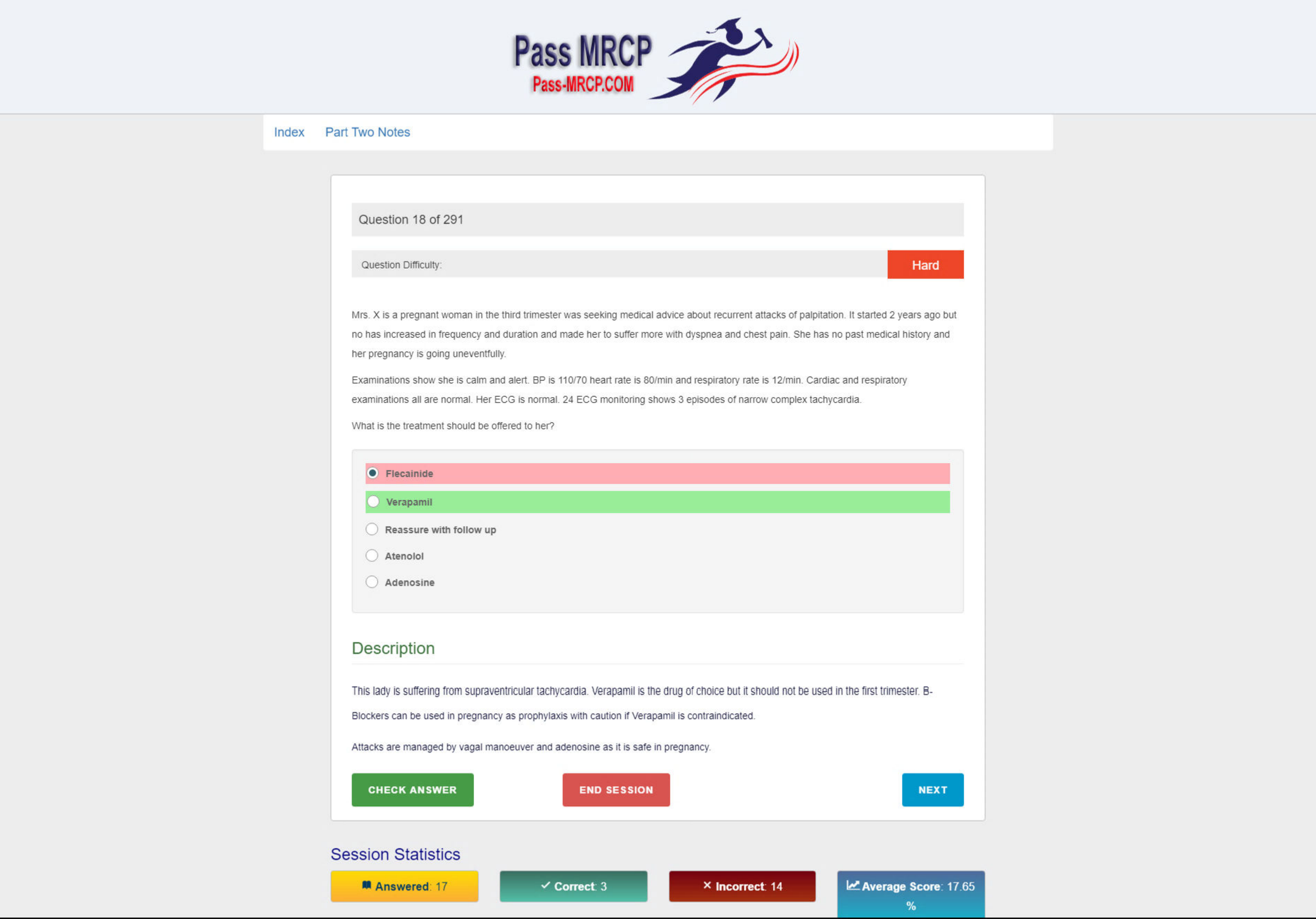
Session Statistics

Answered: 16

✓ **Correct**: 3

× **Incorrect**: 13

Average Score: 18.75 %



Pass MRCP
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Index
Part Two Notes

Question 18 of 291

Question Difficulty: **Hard**

Mrs. X is a pregnant woman in the third trimester was seeking medical advice about recurrent attacks of palpitation. It started 2 years ago but no has increased in frequency and duration and made her to suffer more with dyspnea and chest pain. She has no past medical history and her pregnancy is going uneventfully.

Examinations show she is calm and alert. BP is 110/70 heart rate is 80/min and respiratory rate is 12/min. Cardiac and respiratory examinations all are normal. Her ECG is normal. 24 ECG monitoring shows 3 episodes of narrow complex tachycardia.

What is the treatment should be offered to her?

- ● **Flecainide**
- ○ **Verapamil**
- ○ **Reassure with follow up**
- ○ **Atenolol**
- ○ **Adenosine**

Description

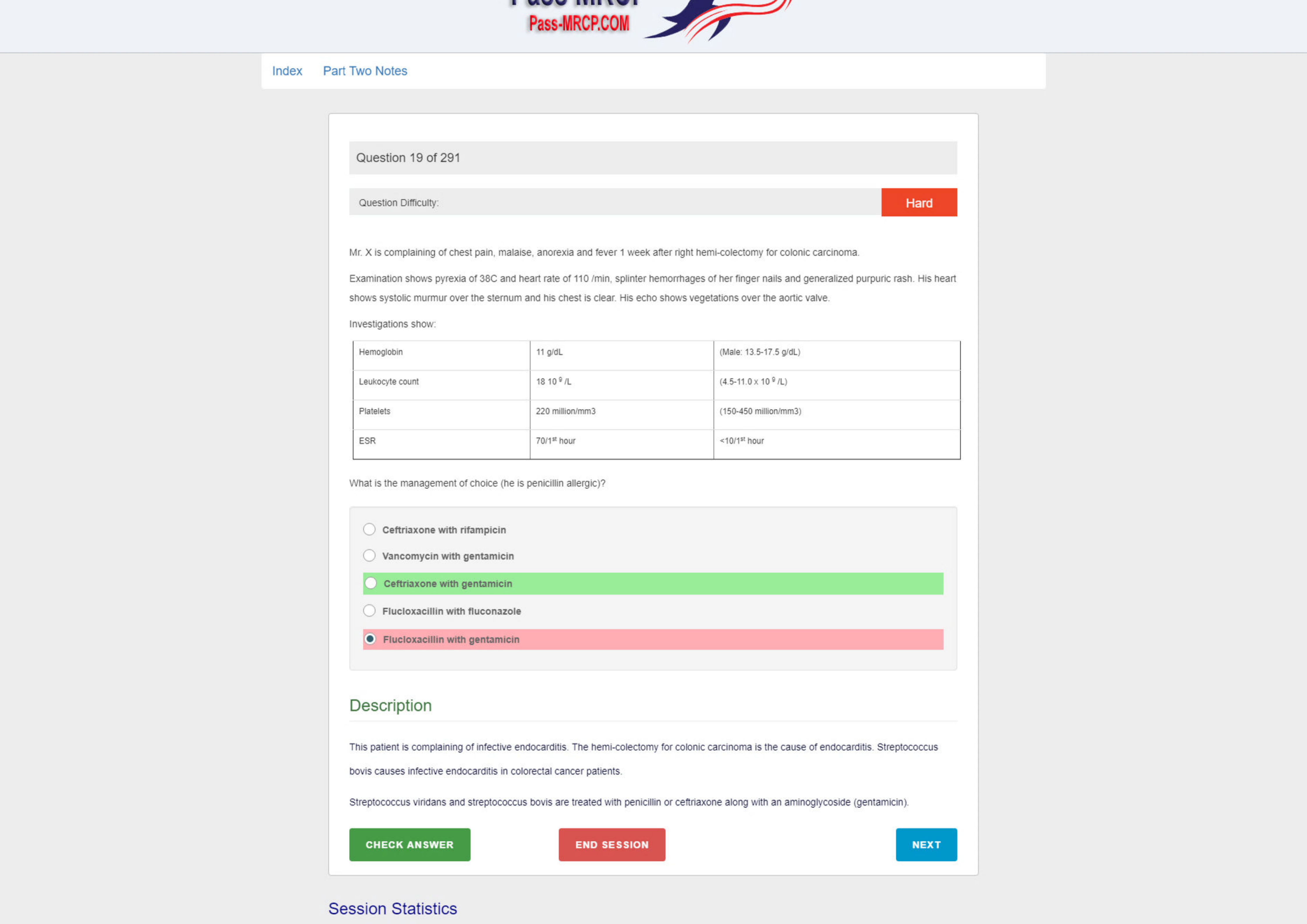
This lady is suffering from supraventricular tachycardia. Verapamil is the drug of choice but it should not be used in the first trimester. B-Blockers can be used in pregnancy as prophylaxis with caution if Verapamil is contraindicated.

Attacks are managed by vagal manoeuver and adenosine as it is safe in pregnancy.

CHECK ANSWER
END SESSION
NEXT

Session Statistics

Answered: 17
✓ Correct: 3
✕ Incorrect: 14
Average Score: 17.65 %



Question 19 of 291

Question Difficulty: **Hard**

Mr. X is complaining of chest pain, malaise, anorexia and fever 1 week after right hemi-colectomy for colonic carcinoma.

Examination shows pyrexia of 38C and heart rate of 110 /min, splinter hemorrhages of her finger nails and generalized purpuric rash. His heart shows systolic murmur over the sternum and his chest is clear. His echo shows vegetations over the aortic valve.

Investigations show:

Hemoglobin	11 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	18 10^9 /L	(4.5-11.0 x 10^9 /L)
Platelets	220 million/mm3	(150-450 million/mm3)
ESR	70/1st hour	<10/1st hour

What is the management of choice (he is penicillin allergic)?

- ○ **Ceftriaxone with rifampicin**
- ○ **Vancomycin with gentamicin**
- ○ **Ceftriaxone with gentamicin**
- ○ **Flucloxacillin with fluconazole**
- ● **Flucloxacillin with gentamicin**

Description

This patient is complaining of infective endocarditis. The hemi-colectomy for colonic carcinoma is the cause of endocarditis. Streptococcus bovis causes infective endocarditis in colorectal cancer patients.

Streptococcus viridans and streptococcus bovis are treated with penicillin or ceftriaxone along with an aminoglycoside (gentamicin).

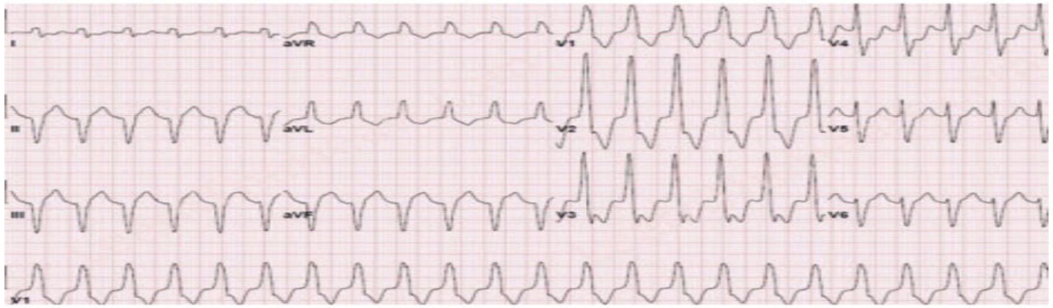
Session Statistics

Question 20 of 291

Question Difficulty: **Hard**

Mr. X was referred to cardiology clinic for follow up of management of NYHA II heart failure. His only complaint is rare non symptomatic runs of palpitations. His current medical regimen includes captopril and spironolactone.

His investigations and ECG all are normal. His 24 ECG monitoring shows:



What is indicated management for his palpitation?

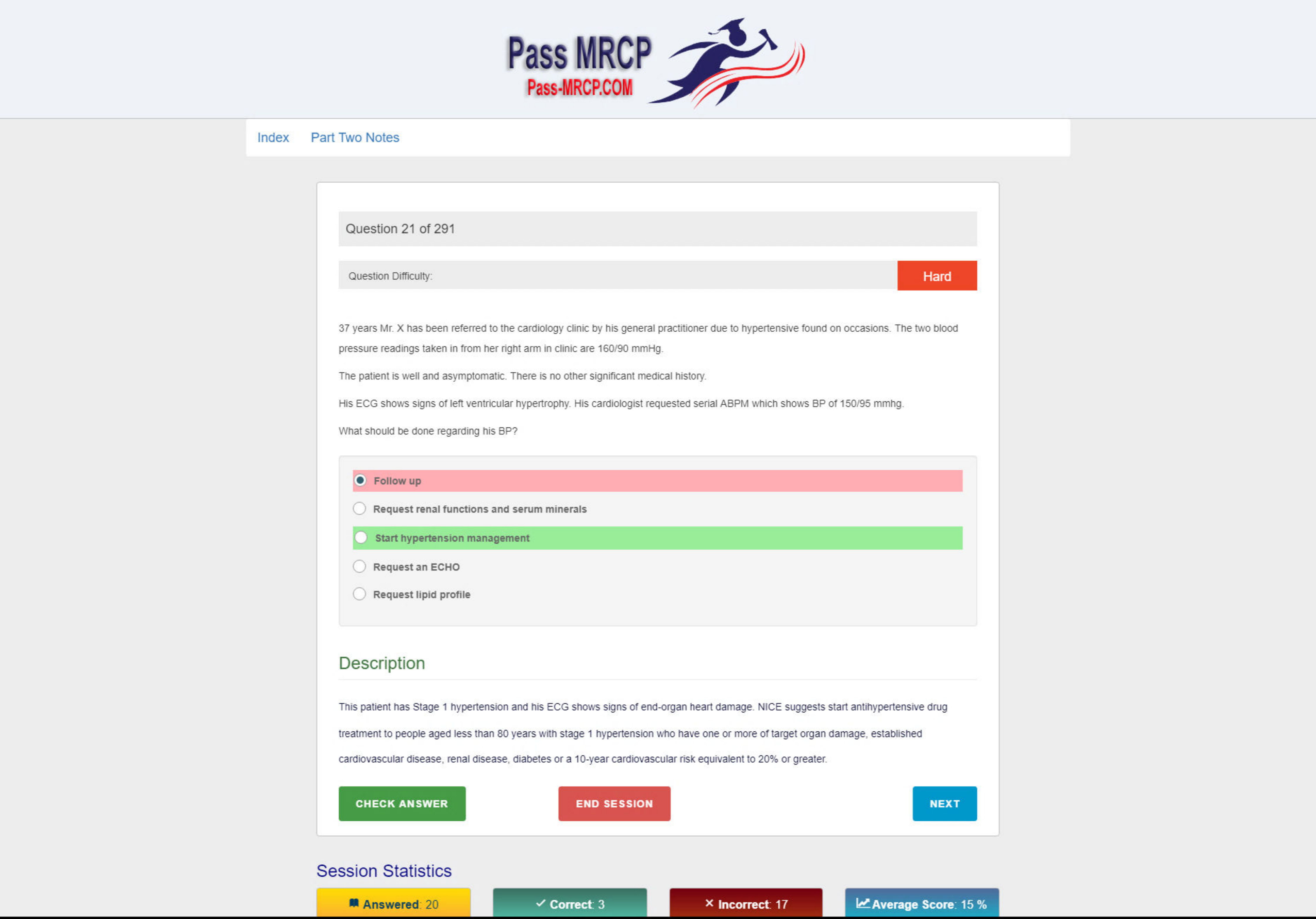
- ○ **Anticoagulation**
- ○ **Amiodarone**
- ● **Flecainide**
- ○ **Follow up**
- ○ **Implantable cardioverter defibrillators**

Description

This patient is complaining of asymptomatic runs of ventricular tachycardia (wide QRS complexes) as shown in ECG. Implantable cardioverter defibrillator is indicated in heart failure even in asymptomatic arrhythmias as in this case.

CHECK ANSWER END SESSION NEXT

Session Statistics



Question 21 of 291

Question Difficulty: Hard

37 years Mr. X has been referred to the cardiology clinic by his general practitioner due to hypertensive found on occasions. The two blood pressure readings taken in from her right arm in clinic are 160/90 mmHg.

The patient is well and asymptomatic. There is no other significant medical history.

His ECG shows signs of left ventricular hypertrophy. His cardiologist requested serial ABPM which shows BP of 150/95 mmhg.

What should be done regarding his BP?

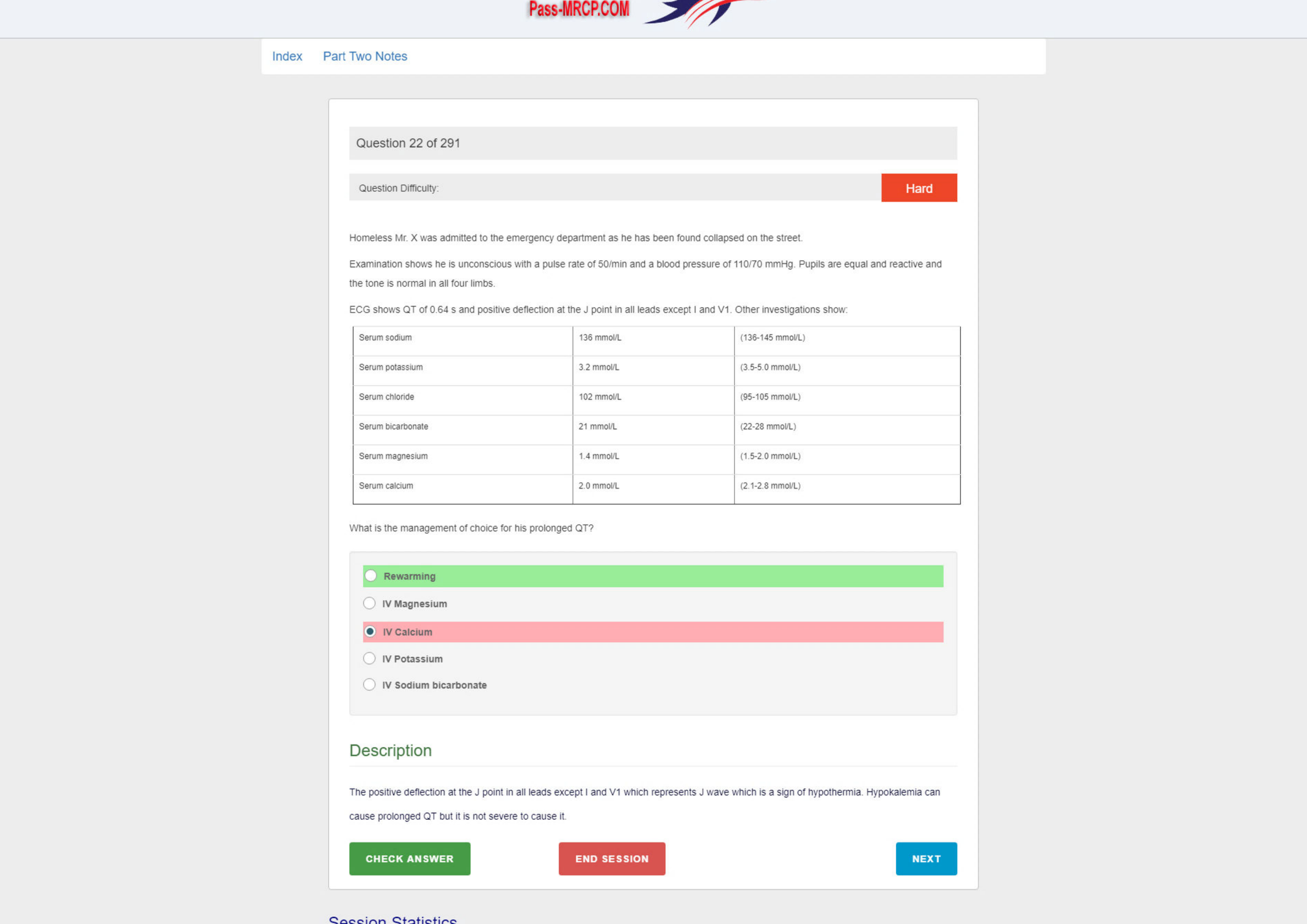
- ● Follow up
- ○ Request renal functions and serum minerals
- ○ Start hypertension management
- ○ Request an ECHO
- ○ Request lipid profile

Description

This patient has Stage 1 hypertension and his ECG shows signs of end-organ heart damage. NICE suggests start antihypertensive drug treatment to people aged less than 80 years with stage 1 hypertension who have one or more of target organ damage, established cardiovascular disease, renal disease, diabetes or a 10-year cardiovascular risk equivalent to 20% or greater.

Session Statistics

Answered: 20
Correct: 3
Incorrect: 17
Average Score: 15 %



Question 22 of 291

Question Difficulty: Hard

Homeless Mr. X was admitted to the emergency department as he has been found collapsed on the street.

Examination shows he is unconscious with a pulse rate of 50/min and a blood pressure of 110/70 mmHg. Pupils are equal and reactive and the tone is normal in all four limbs.

ECG shows QT of 0.64 s and positive deflection at the J point in all leads except I and V1. Other investigations show:

Serum sodium	136 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	102 mmol/L	(95-105 mmol/L)
Serum bicarbonate	21 mmol/L	(22-28 mmol/L)
Serum magnesium	1.4 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.0 mmol/L	(2.1-2.8 mmol/L)

What is the management of choice for his prolonged QT?

- ○ Rewarming
- ○ IV Magnesium
- ● IV Calcium
- ○ IV Potassium
- ○ IV Sodium bicarbonate

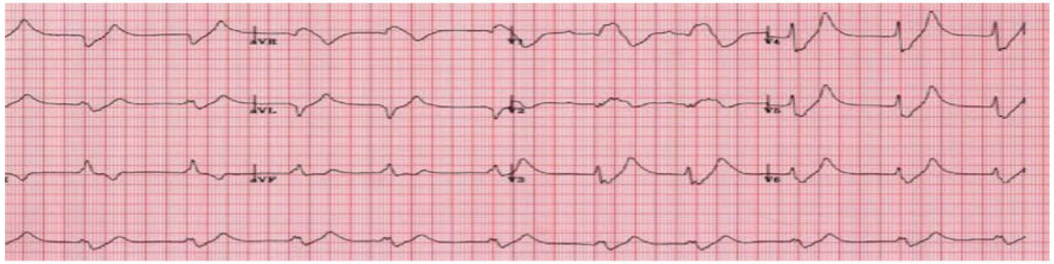
Description

The positive deflection at the J point in all leads except I and V1 which represents J wave which is a sign of hypothermia. Hypokalemia can cause prolonged QT but it is not severe to cause it.

Question 23 of 291

Question Difficulty: **Hard**

Mr. X with a history of renal failure is complaining of palpitations. His ECG is shown in the image.



Which of the following metabolite abnormalities is responsible for this image?

- ● **Hypokalemia**
- ○ **Hyperkalemia**
- ○ **Hyponatremia**
- ○ **Hypomagnesemia**
- ○ **Hypothermia**

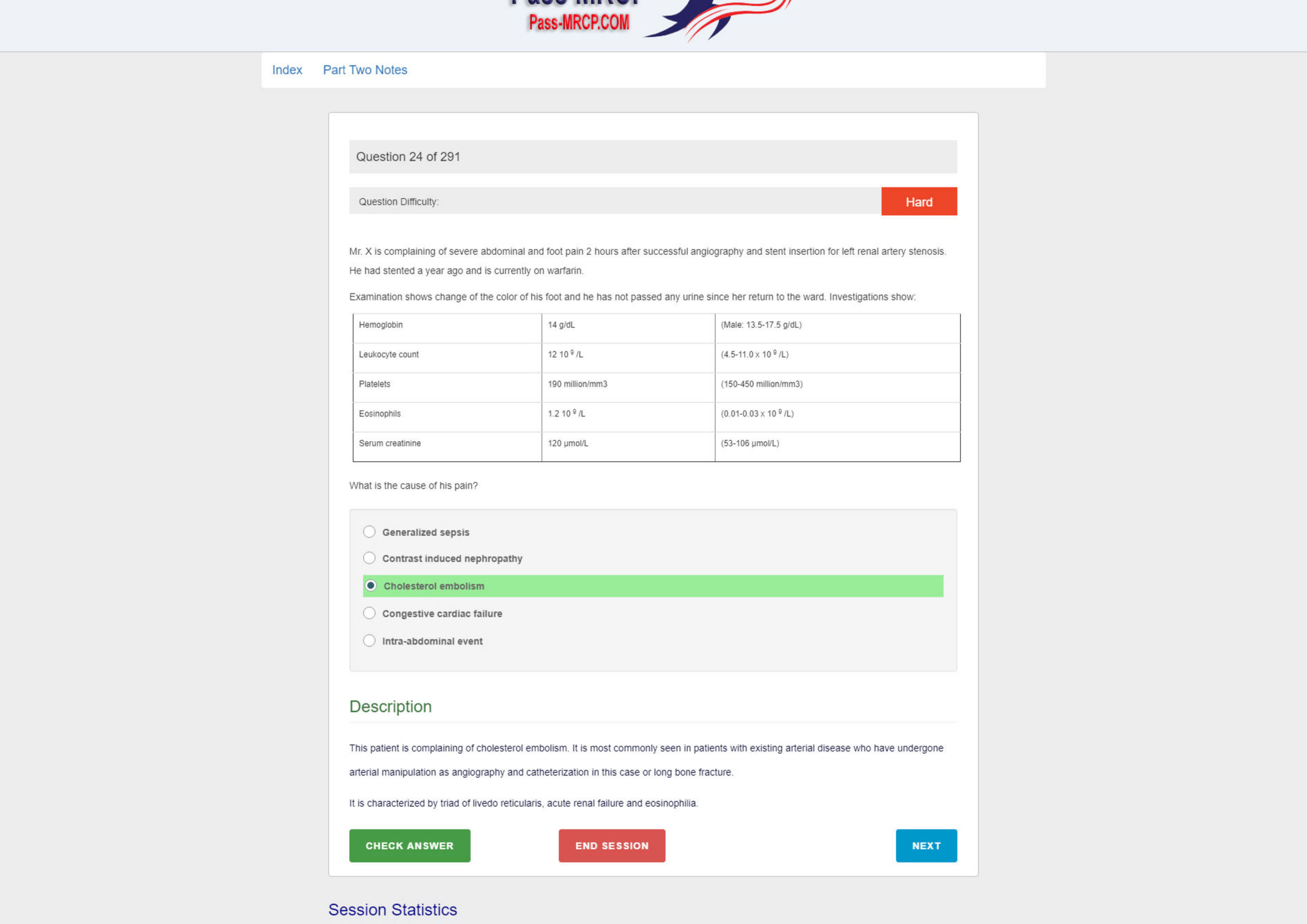
Description

The ECG shows signs of hyperkalemia which are:

- Tall, peaked T waves in precordial leads
- Widening of the QRS
- ST-segment depression
- Decreased or disappearing P wave

CHECK ANSWER END SESSION NEXT

Session Statistics



Question 24 of 291

Question Difficulty: **Hard**

Mr. X is complaining of severe abdominal and foot pain 2 hours after successful angiography and stent insertion for left renal artery stenosis. He had stented a year ago and is currently on warfarin.

Examination shows change of the color of his foot and he has not passed any urine since her return to the ward. Investigations show:

Hemoglobin	14 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	12 10^9/L	(4.5-11.0 x 10^9/L)
Platelets	190 million/mm3	(150-450 million/mm3)
Eosinophils	1.2 10^9/L	(0.01-0.03 x 10^9/L)
Serum creatinine	120 μmol/L	(53-106 μmol/L)

What is the cause of his pain?

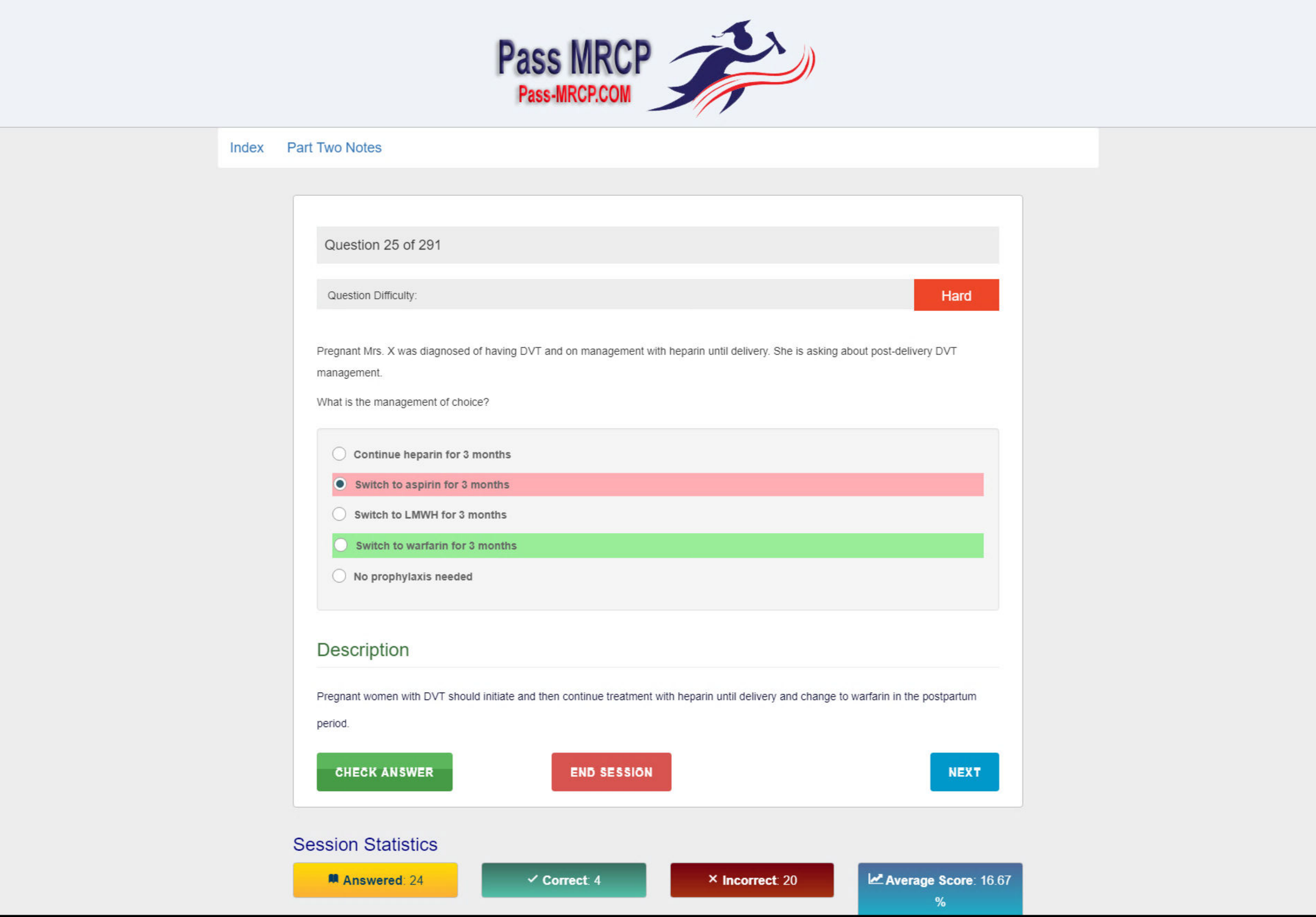
- ○ **Generalized sepsis**
- ○ **Contrast induced nephropathy**
- ● **Cholesterol embolism**
- ○ **Congestive cardiac failure**
- ○ **Intra-abdominal event**

Description

This patient is complaining of cholesterol embolism. It is most commonly seen in patients with existing arterial disease who have undergone arterial manipulation as angiography and catheterization in this case or long bone fracture.

It is characterized by triad of livedo reticularis, acute renal failure and eosinophilia.

Session Statistics


Pass MRCP
Pass-MRCP.COM
Index
Part Two Notes

Question 25 of 291

Question Difficulty: **Hard**

Pregnant Mrs. X was diagnosed of having DVT and on management with heparin until delivery. She is asking about post-delivery DVT management.

What is the management of choice?

- ○ **Continue heparin for 3 months**
- ● **Switch to aspirin for 3 months**
- ○ **Switch to LMWH for 3 months**
- ○ **Switch to warfarin for 3 months**
- ○ **No prophylaxis needed**

Description

Pregnant women with DVT should initiate and then continue treatment with heparin until delivery and change to warfarin in the postpartum period.

CHECK ANSWER
END SESSION
NEXT

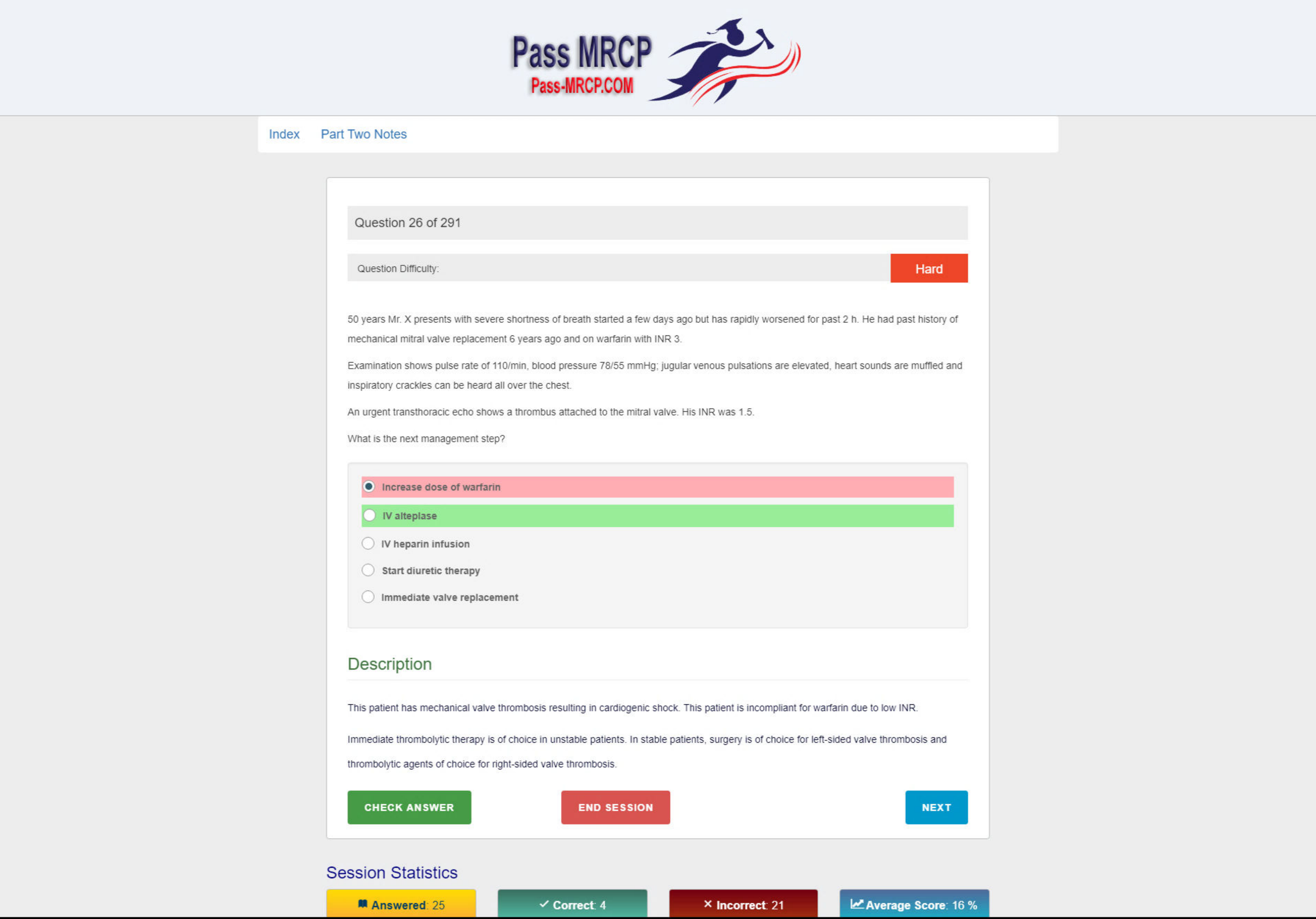
Session Statistics

Answered: 24

✓ **Correct**: 4

✕ **Incorrect**: 20

Average Score: 16.67 %



Question 26 of 291

Question Difficulty: **Hard**

50 years Mr. X presents with severe shortness of breath started a few days ago but has rapidly worsened for past 2 h. He had past history of mechanical mitral valve replacement 6 years ago and on warfarin with INR 3.

Examination shows pulse rate of 110/min, blood pressure 78/55 mmHg; jugular venous pulsations are elevated, heart sounds are muffled and inspiratory crackles can be heard all over the chest.

An urgent transthoracic echo shows a thrombus attached to the mitral valve. His INR was 1.5.

What is the next management step?

- ● **Increase dose of warfarin**
- ○ **IV alteplase**
- ○ **IV heparin infusion**
- ○ **Start diuretic therapy**
- ○ **Immediate valve replacement**

Description

This patient has mechanical valve thrombosis resulting in cardiogenic shock. This patient is incompliant for warfarin due to low INR.

Immediate thrombolytic therapy is of choice in unstable patients. In stable patients, surgery is of choice for left-sided valve thrombosis and thrombolytic agents of choice for right-sided valve thrombosis.

Session Statistics

Answered: 25
Correct: 4
Incorrect: 21
Average Score: 16 %

Question 27 of 291

Question Difficulty: **Hard**

12 years student presents with history of three episodes of transient loss of consciousness over the past 2 months. He describes these episodes as they happen while he was standing and preceded by a feeling of nausea, warmth and light-headedness. His friends describe how he was blacked out as he began jerking her arms a few times and was then incontinent. He awoke after a minute or so and was oriented but nauseous.

There is no past medical history of note except his father had died of myocardial infarction at age of 60 years.

His physical examination is unremarkable and there is no orthostatic hypotension. Investigations show normal ECG, CXR, CBC and electrolytes. An echocardiogram is normal as well.

What is the most likely diagnosis?

- ● **Cardiac arrhythmia**
- ○ **Hypoglycemia**
- ○ **Pseudo seizure**
- ○ **Vasovagal syncope**
- ○ **Epileptic seizure**

- ● **Cardiac arrhythmia**
- ○ **Hypoglycemia**
- ○ **Pseudo seizure**
- ○ **Vasovagal syncope**
- ○ **Epileptic seizure**

Description

Vasovagal syncope is a malaise mediated by the vagus nerve. It is the most common type of fainting.

Symptoms include:

- Prior to losing consciousness the individual experiences lightheadedness, feeling of being extremely hot or cold accompanied by sweating, tinnitus, weakness and visual disturbances
- When sufferers pass out, they fall down and effective blood flow to the brain is immediately restored, allowing the person to regain consciousness
- If the person does not fall into a fully flat and the head remains elevated above the trunk, seizure may occur

Trigger factors include:

- Prolonged standing or upright sitting
- After or during urination
- Standing up very quickly
- During or post-biopsy procedures
- Stress directly related to trauma
- Any painful or unpleasant stimuli (Trauma or watching or experiencing medical procedures)
- Sudden onset of extreme emotions
- Lack of sleep
- Dehydration

CHECK ANSWER **END SESSION** **NEXT**

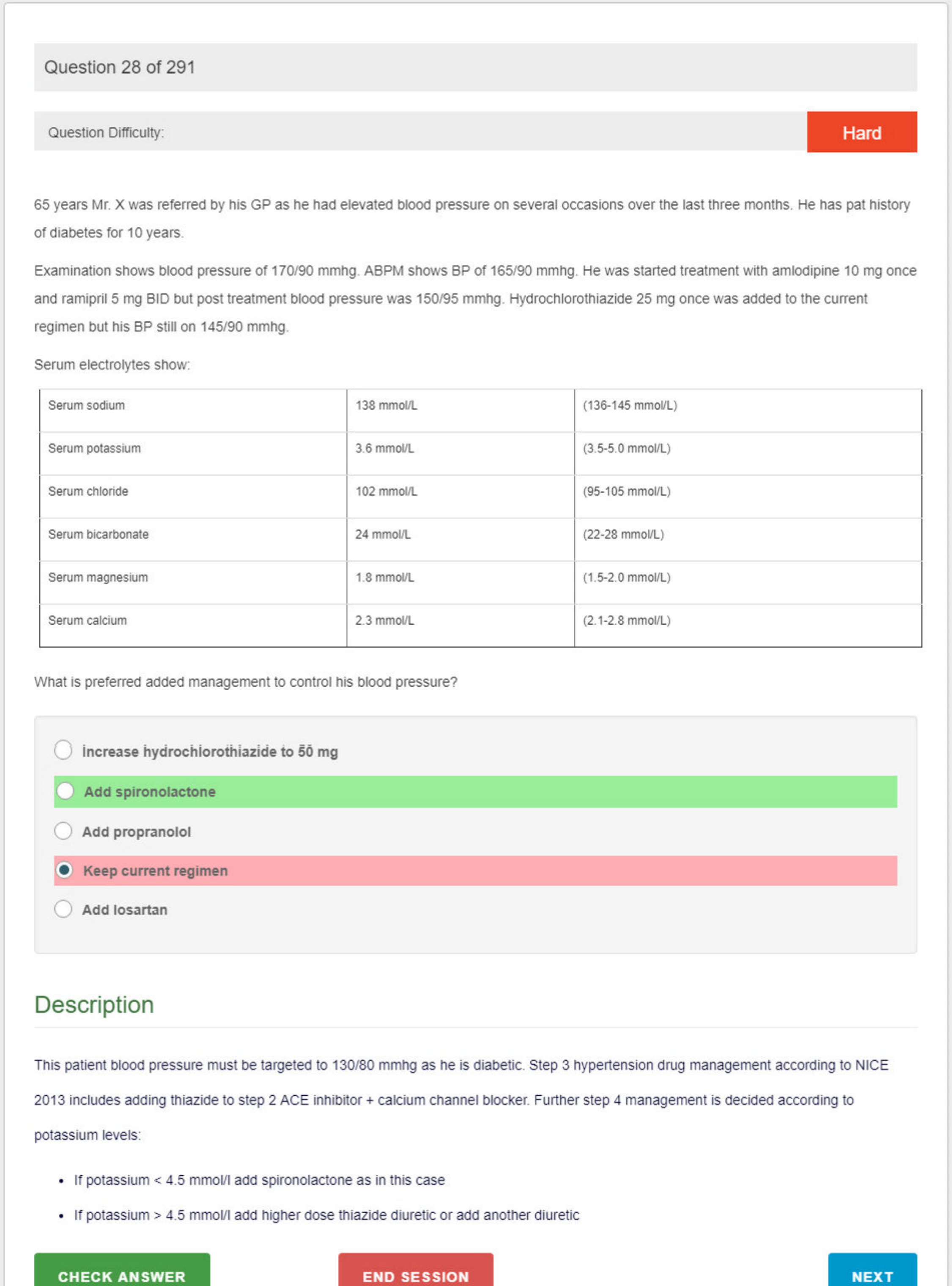
Session Statistics

Answered: 26

✓ **Correct**: 4

✕ **Incorrect**: 22

Average Score: 15.38 %



Question 28 of 291

65 years Mr. X was referred by his GP as he had elevated blood pressure on several occasions over the last three months. He has pat history of diabetes for 10 years.

Examination shows blood pressure of 170/90 mmhg. ABPM shows BP of 165/90 mmhg. He was started treatment with amlodipine 10 mg once and ramipril 5 mg BID but post treatment blood pressure was 150/95 mmhg. Hydrochlorothiazide 25 mg once was added to the current regimen but his BP still on 145/90 mmhg.

Serum electrolytes show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	3.6 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	102 mmol/L	(95-105 mmol/L)
Serum bicarbonate	24 mmol/L	(22-28 mmol/L)
Serum magnesium	1.8 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)

What is preferred added management to control his blood pressure?

○ **Increase hydrochlorothiazide to 50 mg**

○ **Add spironolactone**

○ **Add propranolol**

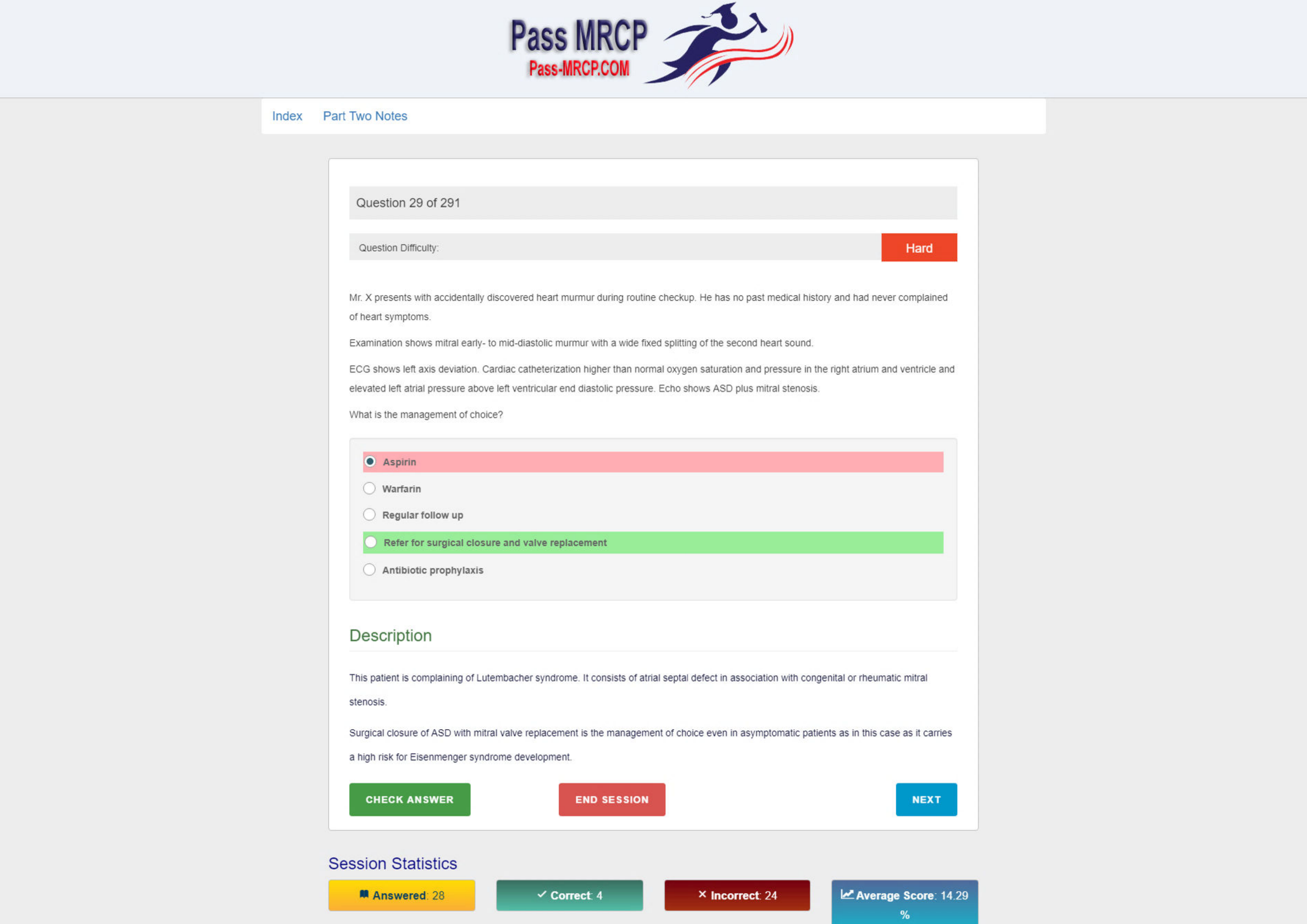
● **Keep current regimen**

○ **Add losartan**

Description

This patient blood pressure must be targeted to 130/80 mmhg as he is diabetic. Step 3 hypertension drug management according to NICE 2013 includes adding thiazide to step 2 ACE inhibitor + calcium channel blocker. Further step 4 management is decided according to potassium levels:

- If potassium < 4.5 mmol/l add spironolactone as in this case
- If potassium > 4.5 mmol/l add higher dose thiazide diuretic or add another diuretic



Question 29 of 291

Question Difficulty: **Hard**

Mr. X presents with accidentally discovered heart murmur during routine checkup. He has no past medical history and had never complained of heart symptoms.

Examination shows mitral early- to mid-diastolic murmur with a wide fixed splitting of the second heart sound.

ECG shows left axis deviation. Cardiac catheterization higher than normal oxygen saturation and pressure in the right atrium and ventricle and elevated left atrial pressure above left ventricular end diastolic pressure. Echo shows ASD plus mitral stenosis.

What is the management of choice?

● **Aspirin**
○ **Warfarin**
○ **Regular follow up**
○ **Refer for surgical closure and valve replacement**
○ **Antibiotic prophylaxis**

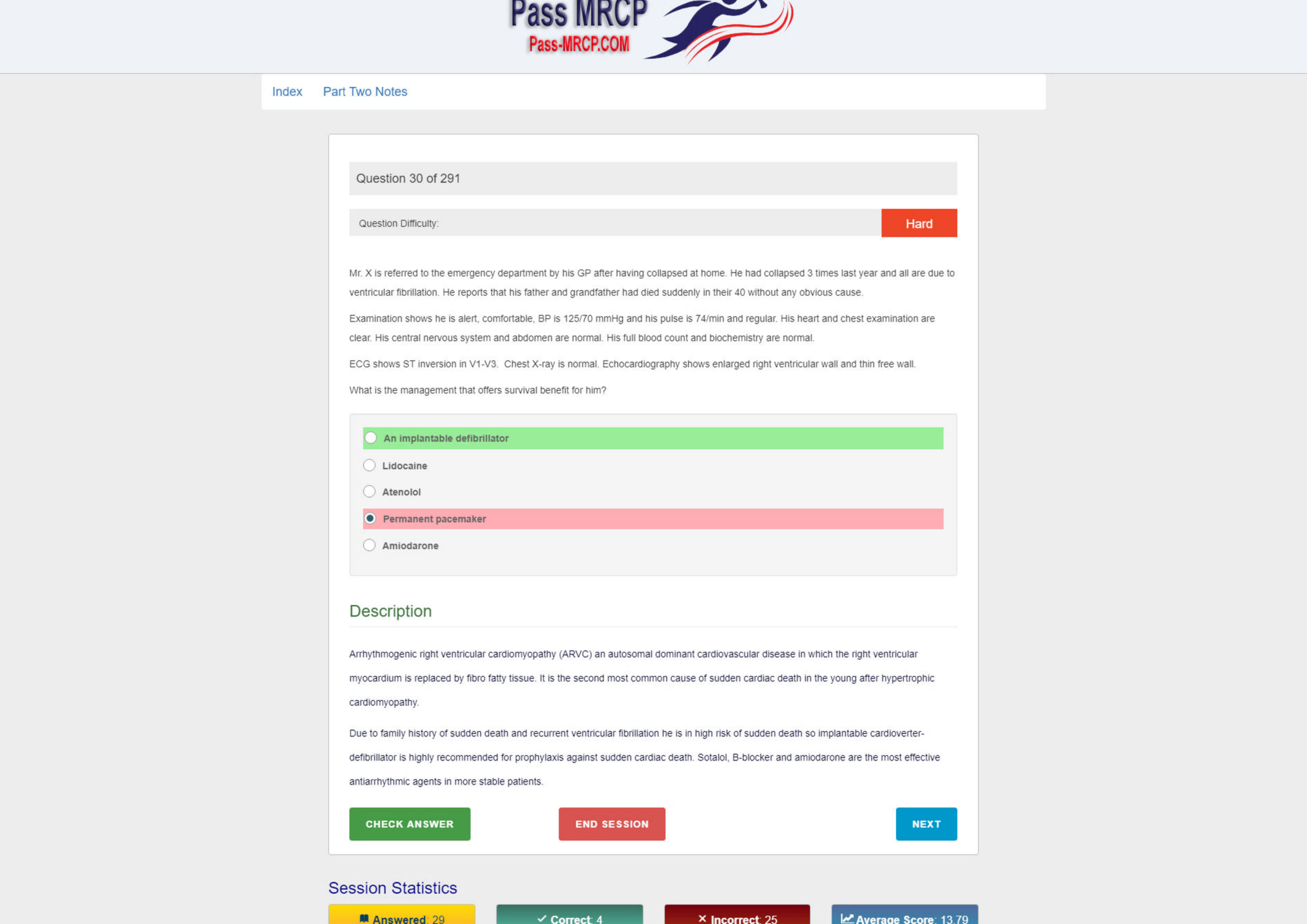
Description

This patient is complaining of Lutembacher syndrome. It consists of atrial septal defect in association with congenital or rheumatic mitral stenosis.

Surgical closure of ASD with mitral valve replacement is the management of choice even in asymptomatic patients as in this case as it carries a high risk for Eisenmenger syndrome development.

Session Statistics

Answered: 28
✓ **Correct**: 4
× **Incorrect**: 24
Average Score: 14.29 %



Question 30 of 291

Question Difficulty: Hard

Mr. X is referred to the emergency department by his GP after having collapsed at home. He had collapsed 3 times last year and all are due to ventricular fibrillation. He reports that his father and grandfather had died suddenly in their 40 without any obvious cause.

Examination shows he is alert, comfortable, BP is 125/70 mmHg and his pulse is 74/min and regular. His heart and chest examination are clear. His central nervous system and abdomen are normal. His full blood count and biochemistry are normal.

ECG shows ST inversion in V1-V3. Chest X-ray is normal. Echocardiography shows enlarged right ventricular wall and thin free wall.

What is the management that offers survival benefit for him?

- ○ **An implantable defibrillator**
- ○ **Lidocaine**
- ○ **Atenolol**
- ● **Permanent pacemaker**
- ○ **Amiodarone**

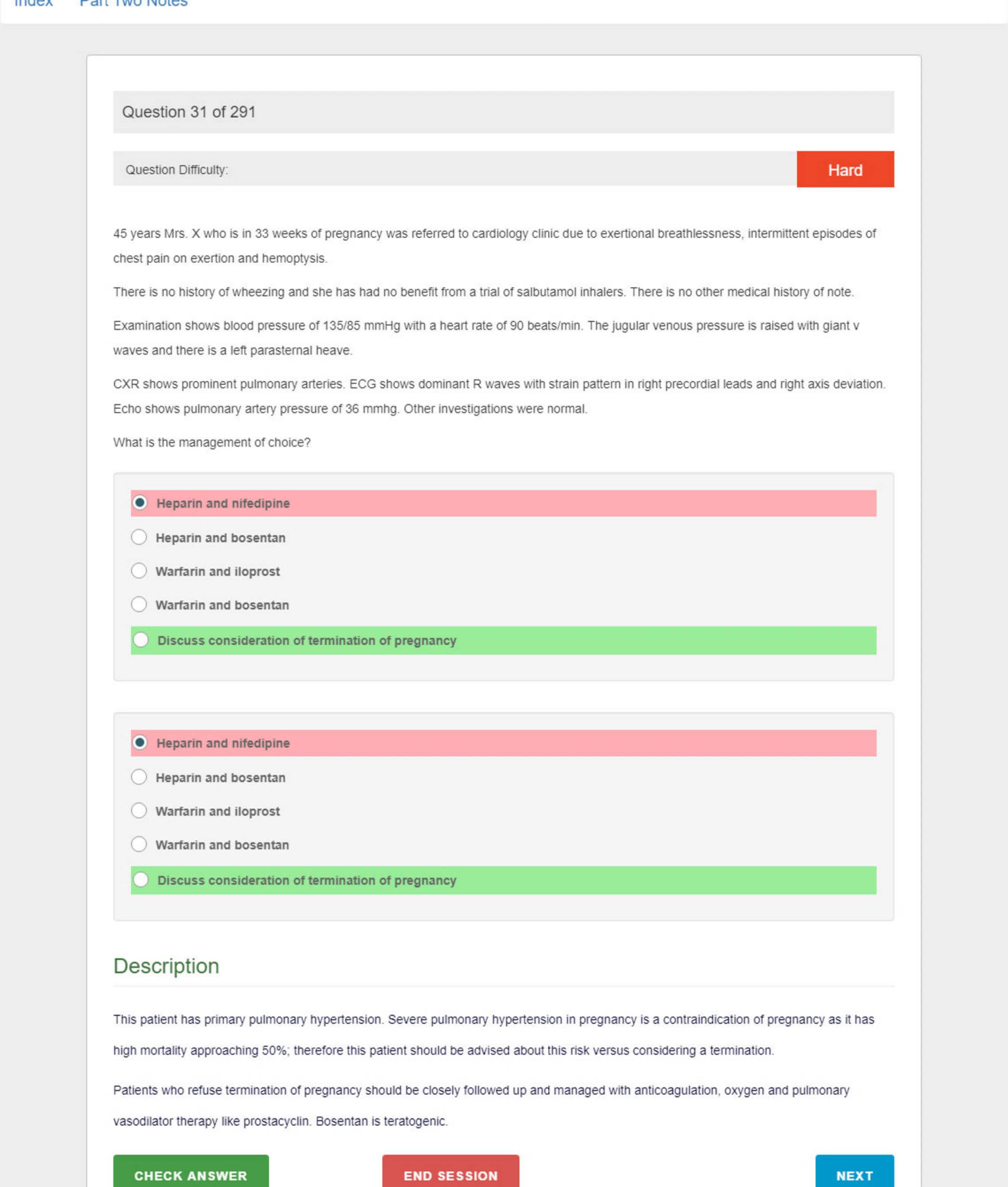
Description

Arrhythmogenic right ventricular cardiomyopathy (ARVC) an autosomal dominant cardiovascular disease in which the right ventricular myocardium is replaced by fibro fatty tissue. It is the second most common cause of sudden cardiac death in the young after hypertrophic cardiomyopathy.

Due to family history of sudden death and recurrent ventricular fibrillation he is in high risk of sudden death so implantable cardioverter-defibrillator is highly recommended for prophylaxis against sudden cardiac death. Sotalol, B-blocker and amiodarone are the most effective antiarrhythmic agents in more stable patients.

Session Statistics

Answered: 29
Correct: 4
Incorrect: 25
Average Score: 13.79



Question 31 of 291

Question Difficulty: **Hard**

45 years Mrs. X who is in 33 weeks of pregnancy was referred to cardiology clinic due to exertional breathlessness, intermittent episodes of chest pain on exertion and hemoptysis.

There is no history of wheezing and she has had no benefit from a trial of salbutamol inhalers. There is no other medical history of note.

Examination shows blood pressure of 135/85 mmHg with a heart rate of 90 beats/min. The jugular venous pressure is raised with giant v waves and there is a left parasternal heave.

CXR shows prominent pulmonary arteries. ECG shows dominant R waves with strain pattern in right precordial leads and right axis deviation. Echo shows pulmonary artery pressure of 36 mmhg. Other investigations were normal.

What is the management of choice?

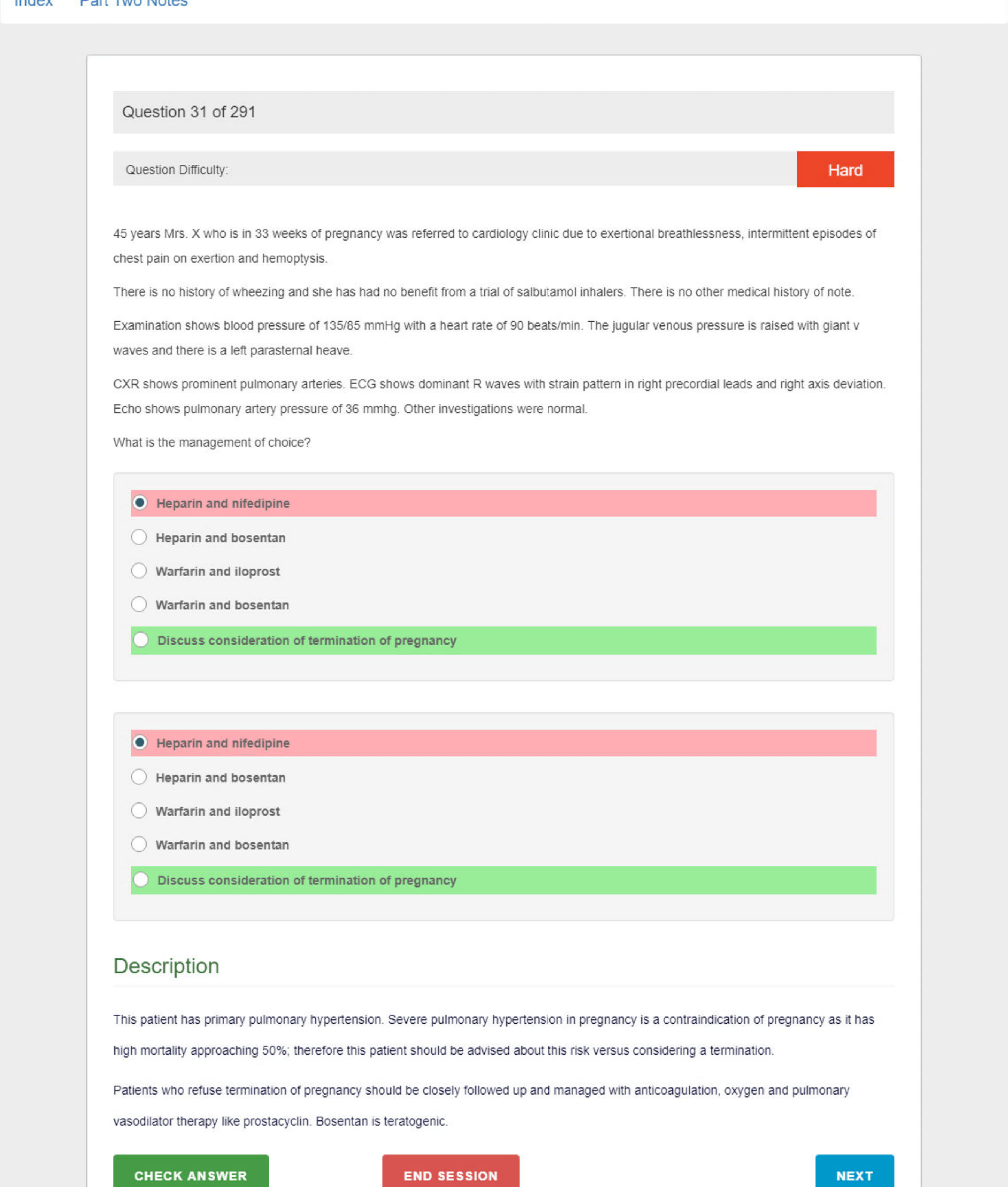
- ● **Heparin and nifedipine**
- ○ **Heparin and bosentan**
- ○ **Warfarin and iloprost**
- ○ **Warfarin and bosentan**
- ○ **Discuss consideration of termination of pregnancy**

- ● **Heparin and nifedipine**
- ○ **Heparin and bosentan**
- ○ **Warfarin and iloprost**
- ○ **Warfarin and bosentan**
- ○ **Discuss consideration of termination of pregnancy**

Description

This patient has primary pulmonary hypertension. Severe pulmonary hypertension in pregnancy is a contraindication of pregnancy as it has high mortality approaching 50%; therefore this patient should be advised about this risk versus considering a termination.

Patients who refuse termination of pregnancy should be closely followed up and managed with anticoagulation, oxygen and pulmonary vasodilator therapy like prostacyclin. Bosentan is teratogenic.



Question 31 of 291

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- ○ **Heparin and bosentan**
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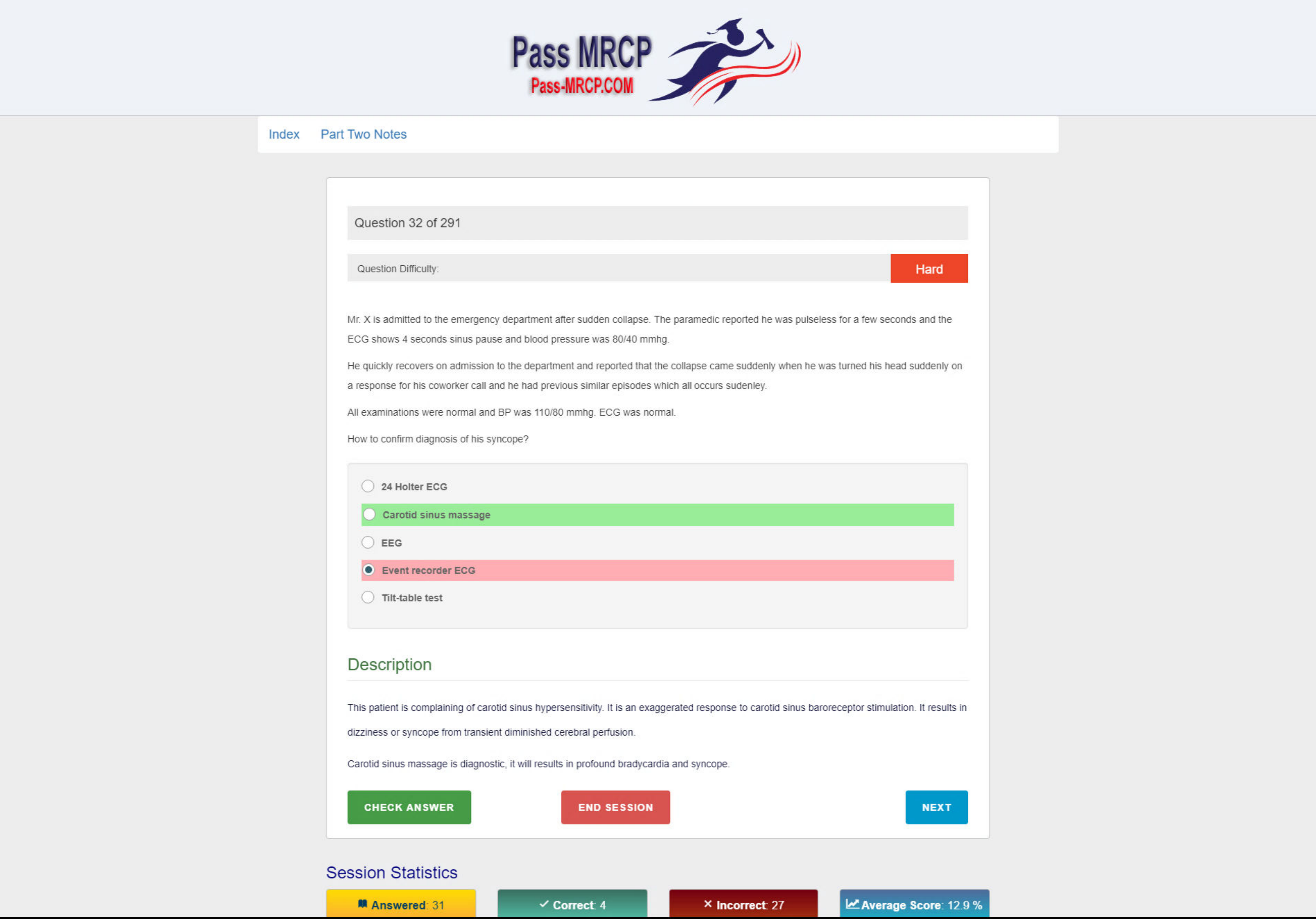

Pass MRCP
Pass-MRCP.COM
Index
Part Two Notes

Question 32 of 291

Question Difficulty: Hard

Mr. X is admitted to the emergency department after sudden collapse. The paramedic reported he was pulseless for a few seconds and the ECG shows 4 seconds sinus pause and blood pressure was 80/40 mmhg.

He quickly recovers on admission to the department and reported that the collapse came suddenly when he was turned his head suddenly on a response for his coworker call and he had previous similar episodes which all occurs sudenley.

All examinations were normal and BP was 110/80 mmhg. ECG was normal.

How to confirm diagnosis of his syncope?

- ○ **24 Holter ECG**
- ○ **Carotid sinus massage**
- ○ **EEG**
- ● **Event recorder ECG**
- ○ **Tilt-table test**

Description

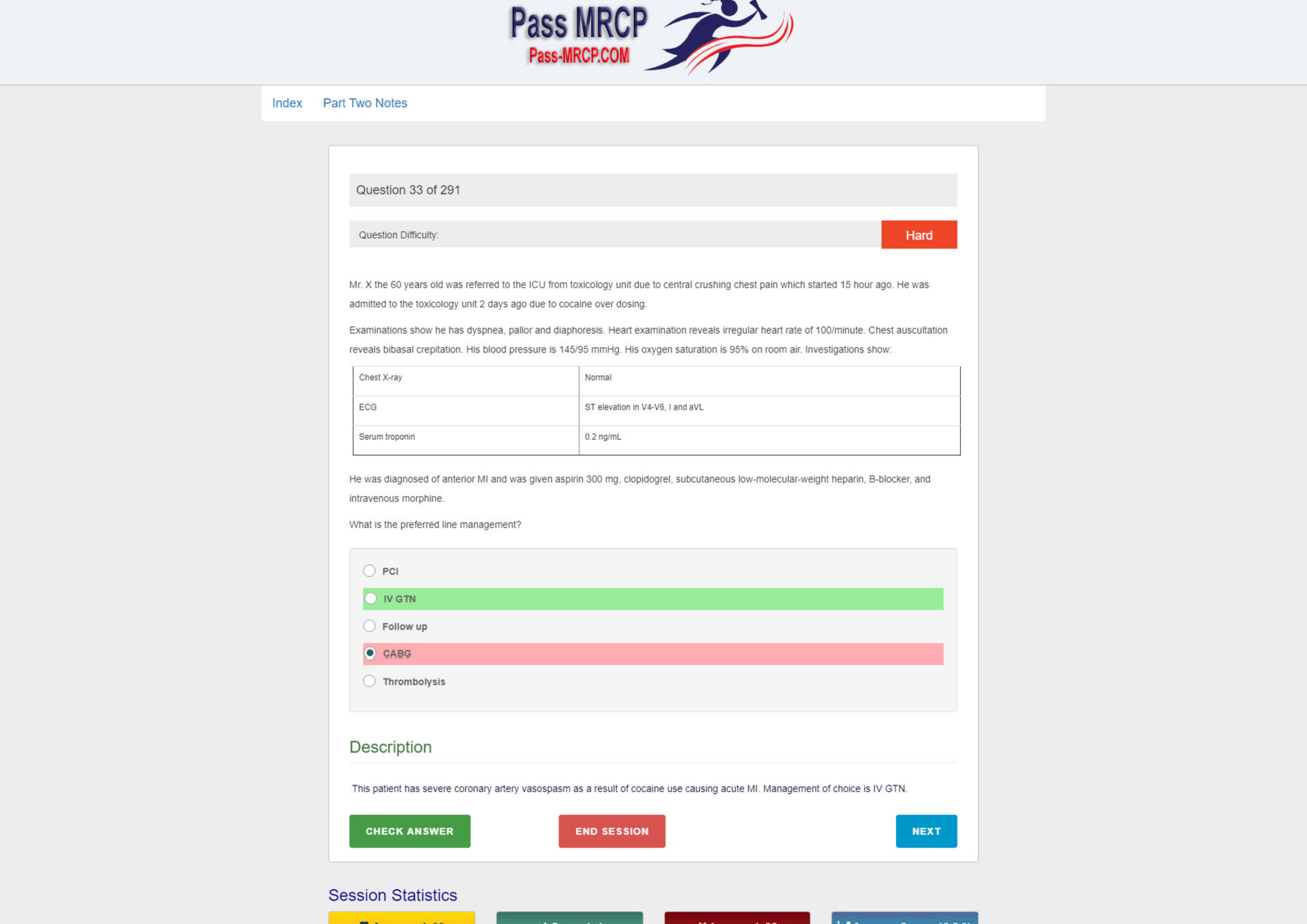
This patient is complaining of carotid sinus hypersensitivity. It is an exaggerated response to carotid sinus baroreceptor stimulation. It results in dizziness or syncope from transient diminished cerebral perfusion.

Carotid sinus massage is diagnostic, it will results in profound bradycardia and syncope.

CHECK ANSWER
END SESSION
NEXT

Session Statistics

Answered: 31
Correct: 4
Incorrect: 27
Average Score: 12.9 %



Question 33 of 291

Question Difficulty: **Hard**

Mr. X the 60 years old was referred to the ICU from toxicology unit due to central crushing chest pain which started 15 hour ago. He was admitted to the toxicology unit 2 days ago due to cocaine over dosing.

Examinations show he has dyspnea, pallor and diaphoresis. Heart examination reveals irregular heart rate of 100/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 145/95 mmHg. His oxygen saturation is 95% on room air. Investigations show:

Chest X-ray	Normal
ECG	ST elevation in V4-V6, I and aVL
Serum troponin	0.2 ng/mL

He was diagnosed of anterior MI and was given aspirin 300 mg, clopidogrel, subcutaneous low-molecular-weight heparin, B-blocker, and intravenous morphine.

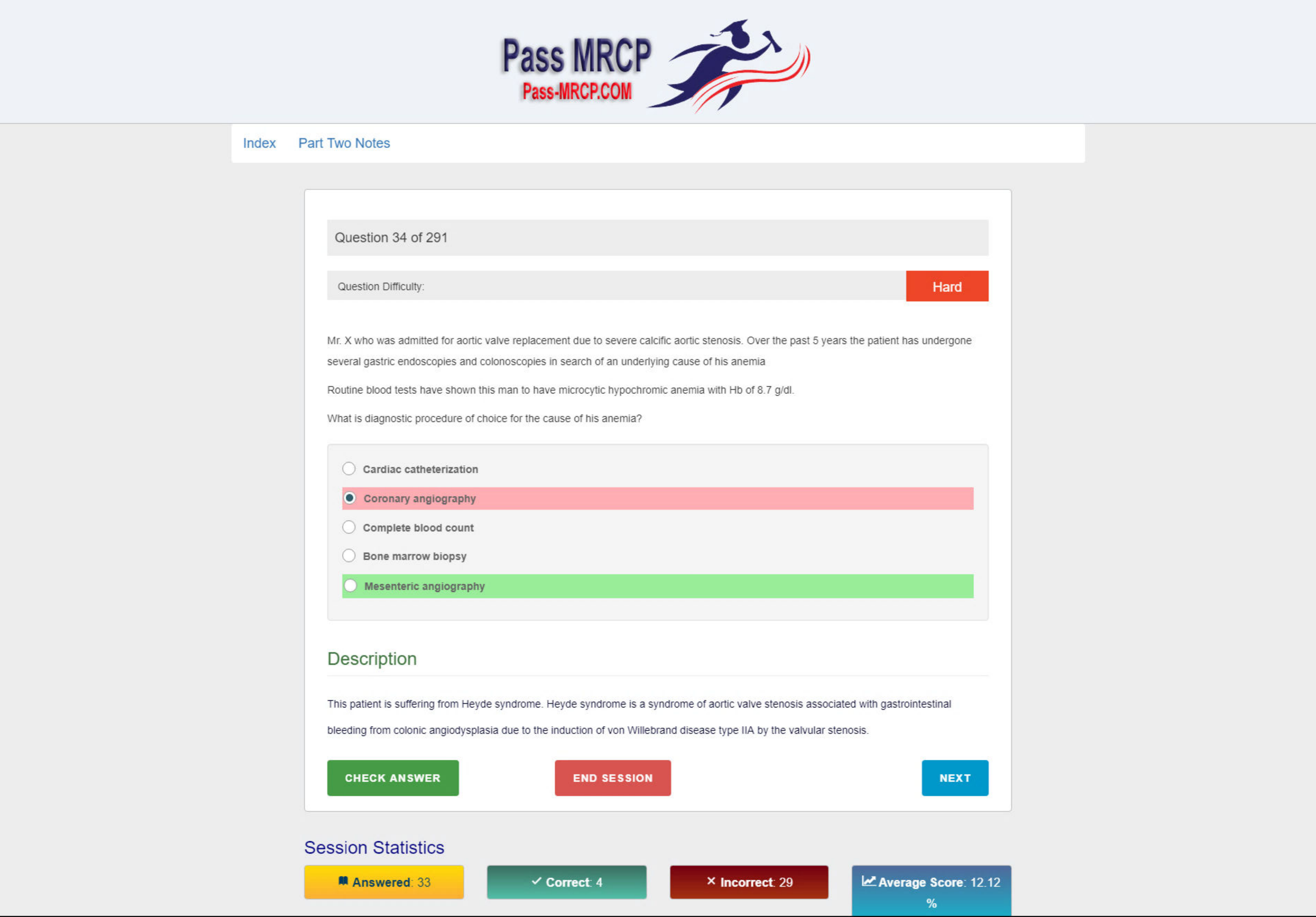
What is the preferred line management?

○ PCI
○ IV GTN
○ Follow up
● CABG
○ Thrombolysis

Description

This patient has severe coronary artery vasospasm as a result of cocaine use causing acute MI. Management of choice is IV GTN.

Session Statistics



Question 34 of 291

Question Difficulty: **Hard**

Mr. X who was admitted for aortic valve replacement due to severe calcific aortic stenosis. Over the past 5 years the patient has undergone several gastric endoscopies and colonoscopies in search of an underlying cause of his anemia

Routine blood tests have shown this man to have microcytic hypochromic anemia with Hb of 8.7 g/dl.

What is diagnostic procedure of choice for the cause of his anemia?

- ○ **Cardiac catheterization**
- ● **Coronary angiography**
- ○ **Complete blood count**
- ○ **Bone marrow biopsy**
- ○ **Mesenteric angiography**

Description

This patient is suffering from Heyde syndrome. Heyde syndrome is a syndrome of aortic valve stenosis associated with gastrointestinal bleeding from colonic angiodysplasia due to the induction of von Willebrand disease type IIA by the valvular stenosis.

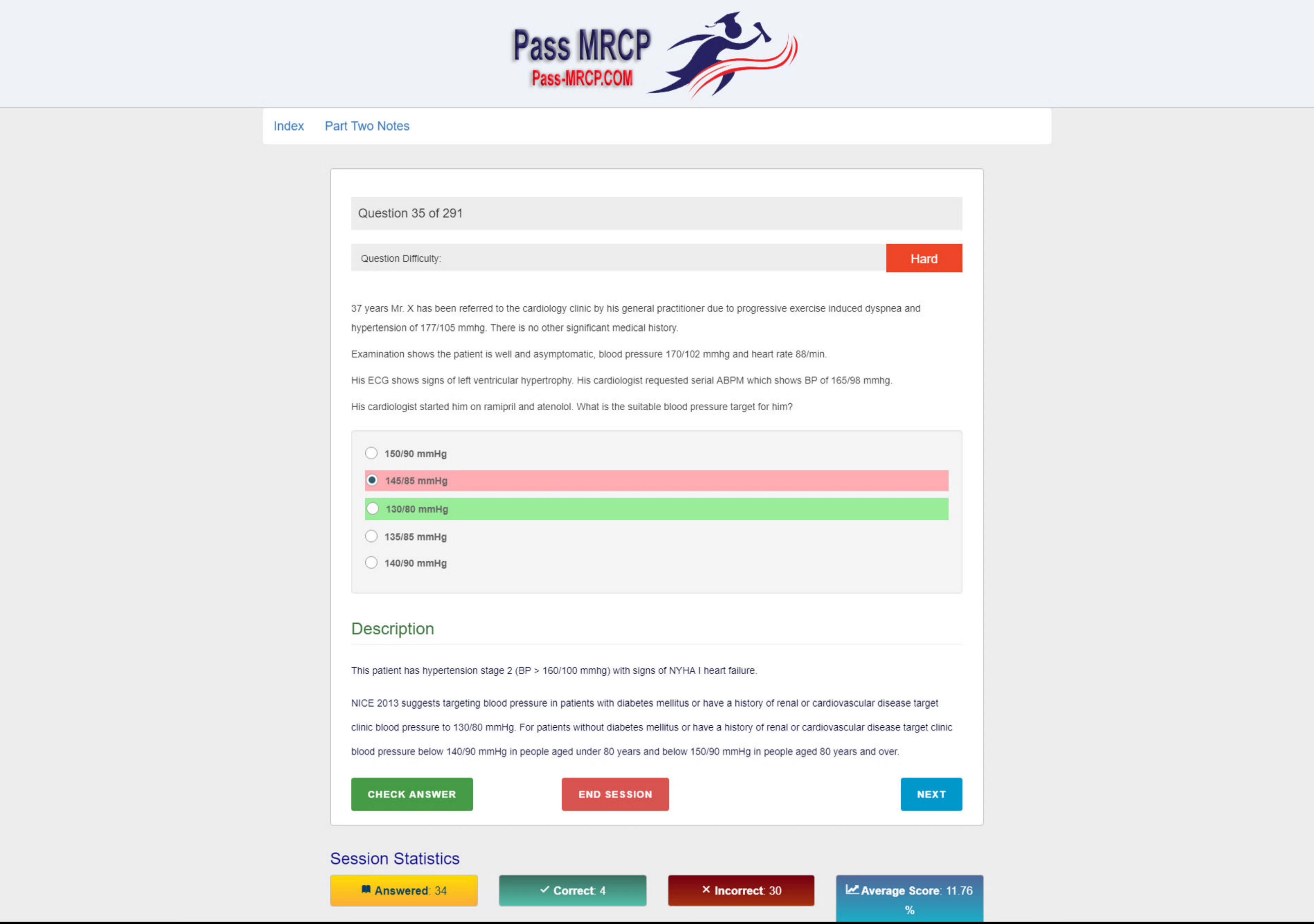
Session Statistics

Answered: 33

✓ **Correct**: 4

× **Incorrect**: 29

Average Score: 12.12 %



Question 35 of 291

Question Difficulty: **Hard**

37 years Mr. X has been referred to the cardiology clinic by his general practitioner due to progressive exercise induced dyspnea and hypertension of 177/105 mmhg. There is no other significant medical history.

Examination shows the patient is well and asymptomatic, blood pressure 170/102 mmhg and heart rate 88/min.

His ECG shows signs of left ventricular hypertrophy. His cardiologist requested serial ABPM which shows BP of 165/98 mmhg.

His cardiologist started him on ramipril and atenolol. What is the suitable blood pressure target for him?

- ○ **150/90 mmHg**
- ● **145/85 mmHg**
- ○ **130/80 mmHg**
- ○ **135/85 mmHg**
- ○ **140/90 mmHg**

Description

This patient has hypertension stage 2 (BP > 160/100 mmhg) with signs of NYHA I heart failure.

NICE 2013 suggests targeting blood pressure in patients with diabetes mellitus or have a history of renal or cardiovascular disease target clinic blood pressure to 130/80 mmHg. For patients without diabetes mellitus or have a history of renal or cardiovascular disease target clinic blood pressure below 140/90 mmHg in people aged under 80 years and below 150/90 mmHg in people aged 80 years and over.

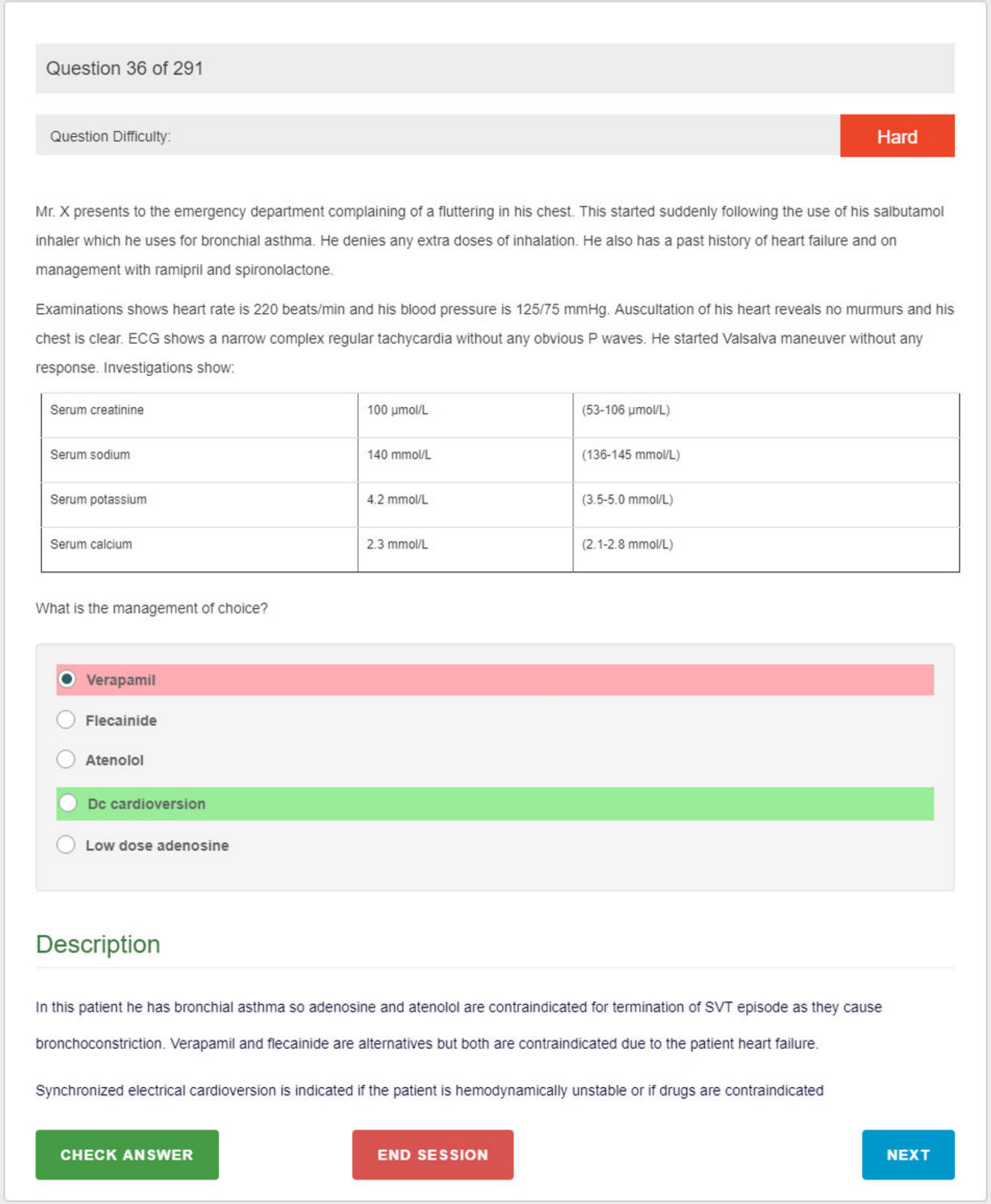
Session Statistics

Answered: 34

✓ **Correct**: 4

✕ **Incorrect**: 30

Average Score: 11.76 %



Question 36 of 291

Question Difficulty: **Hard**

Mr. X presents to the emergency department complaining of a fluttering in his chest. This started suddenly following the use of his salbutamol inhaler which he uses for bronchial asthma. He denies any extra doses of inhalation. He also has a past history of heart failure and on management with ramipril and spironolactone.

Examinations shows heart rate is 220 beats/min and his blood pressure is 125/75 mmHg. Auscultation of his heart reveals no murmurs and his chest is clear. ECG shows a narrow complex regular tachycardia without any obvious P waves. He started Valsalva maneuver without any response. Investigations show:

Serum creatinine	100 µmol/L	(53-106 µmol/L)
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)

What is the management of choice?

- ● **Verapamil**
- ○ **Flecainide**
- ○ **Atenolol**
- ○ **Dc cardioversion**
- ○ **Low dose adenosine**

Description

In this patient he has bronchial asthma so adenosine and atenolol are contraindicated for termination of SVT episode as they cause bronchoconstriction. Verapamil and flecainide are alternatives but both are contraindicated due to the patient heart failure.

Synchronized electrical cardioversion is indicated if the patient is hemodynamically unstable or if drugs are contraindicated

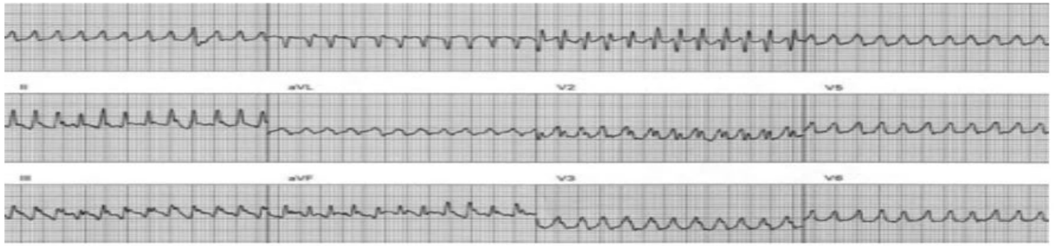
Session Statistics

Question 37 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the ICU due to collapse. He has no past medical history of any disease.

Examinations show he is unconscious with BP 80/50 mmhg, respiratory rate 25/min and oxygen saturation of 96%. His jugular venous pulse is just visible and he has no pedal edema. First, second and third heart sounds are heard producing a gallop rhythm. His chest is clinically clear. His ECG is shown in the image.



What is most likely diagnosis?

○ **Ventricular fibrillation**

● **Sustained ventricular tachycardia**

○ **Ventricular premature beats**

○ **Torsade de pointes**

○ **Atrial tachycardia**

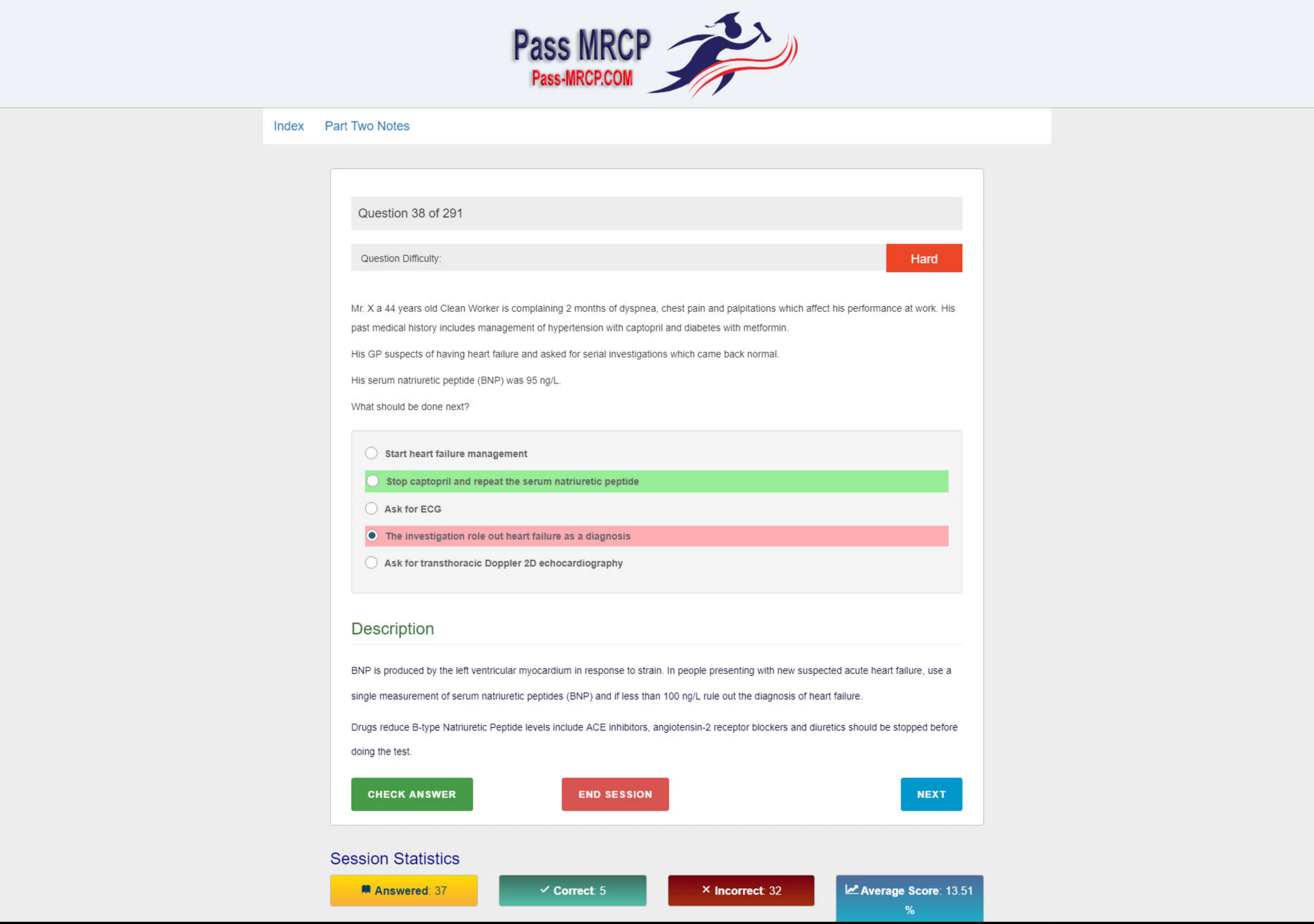
Description

Ventricular tachycardia is defined as any rhythm faster than 100 (or 120) beats/min, with 3 or more irregular beats in a row, arising distal to the bundle of His.

ECG features suggesting VT as in the image:

- Very irregular rhythm
- AV dissociation
- Fusion or capture beats
- Positive QRS concordance in chest leads
- QRS duration exceeding 0.14 second

CHECK ANSWER END SESSION NEXT



Question 38 of 291

Question Difficulty: Hard

Mr. X a 44 years old Clean Worker is complaining 2 months of dyspnea, chest pain and palpitations which affect his performance at work. His past medical history includes management of hypertension with captopril and diabetes with metformin.

His GP suspects of having heart failure and asked for serial investigations which came back normal.

His serum natriuretic peptide (BNP) was 95 ng/L.

What should be done next?

- ○ **Start heart failure management**
- ○ **Stop captopril and repeat the serum natriuretic peptide**
- ○ **Ask for ECG**
- ● **The investigation role out heart failure as a diagnosis**
- ○ **Ask for transthoracic Doppler 2D echocardiography**

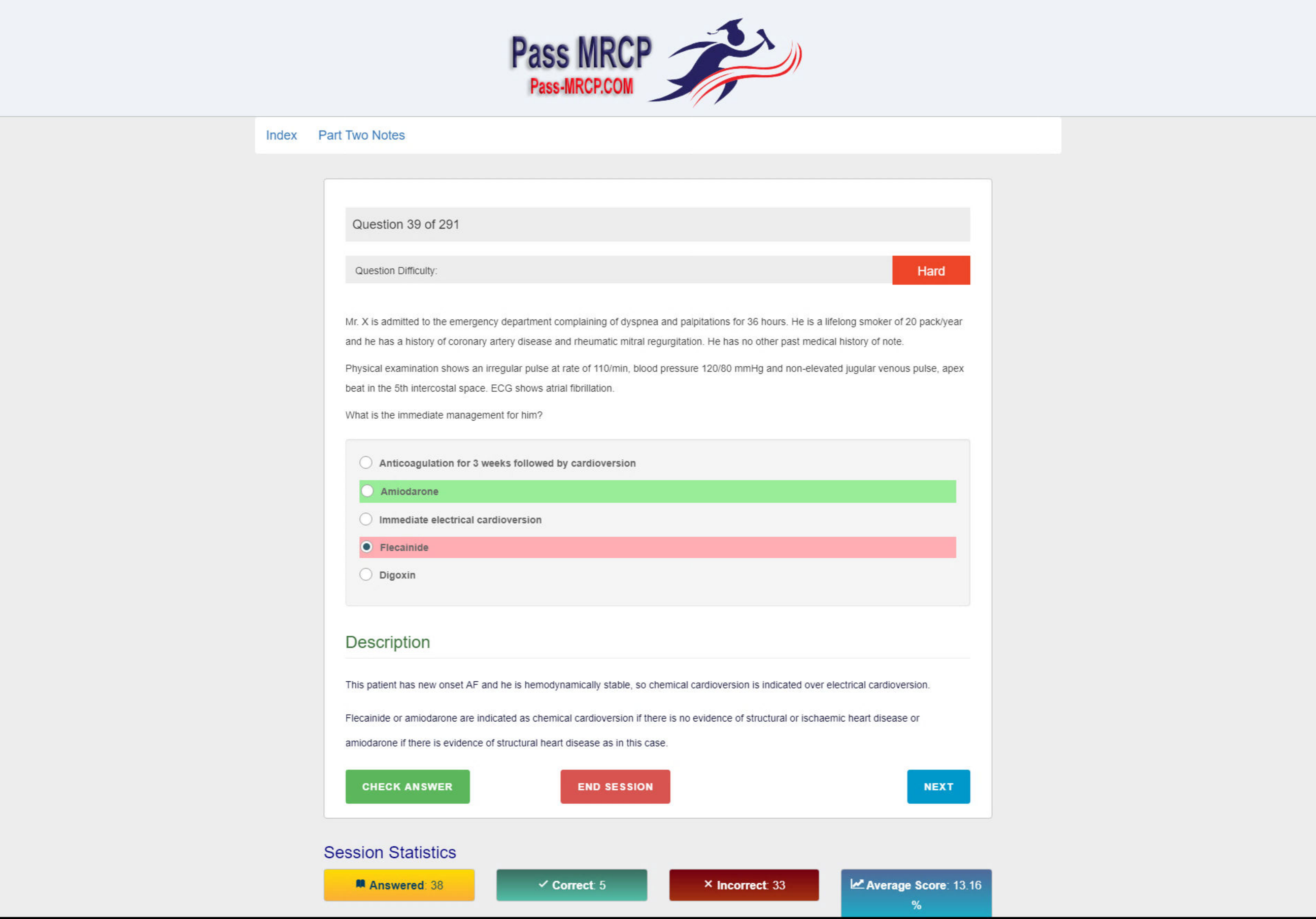
Description

BNP is produced by the left ventricular myocardium in response to strain. In people presenting with new suspected acute heart failure, use a single measurement of serum natriuretic peptides (BNP) and if less than 100 ng/L rule out the diagnosis of heart failure.

Drugs reduce B-type Natriuretic Peptide levels include ACE inhibitors, angiotensin-2 receptor blockers and diuretics should be stopped before doing the test.

Session Statistics

Answered: 37
✓ **Correct**: 5
✕ **Incorrect**: 32
Average Score: 13.51 %



Question 39 of 291

Question Difficulty: Hard

Mr. X is admitted to the emergency department complaining of dyspnea and palpitations for 36 hours. He is a lifelong smoker of 20 pack/year and he has a history of coronary artery disease and rheumatic mitral regurgitation. He has no other past medical history of note.

Physical examination shows an irregular pulse at rate of 110/min, blood pressure 120/80 mmHg and non-elevated jugular venous pulse, apex beat in the 5th intercostal space. ECG shows atrial fibrillation.

What is the immediate management for him?

- ○ **Anticoagulation for 3 weeks followed by cardioversion**
- ○ **Amiodarone**
- ○ **Immediate electrical cardioversion**
- ● **Flecainide**
- ○ **Digoxin**

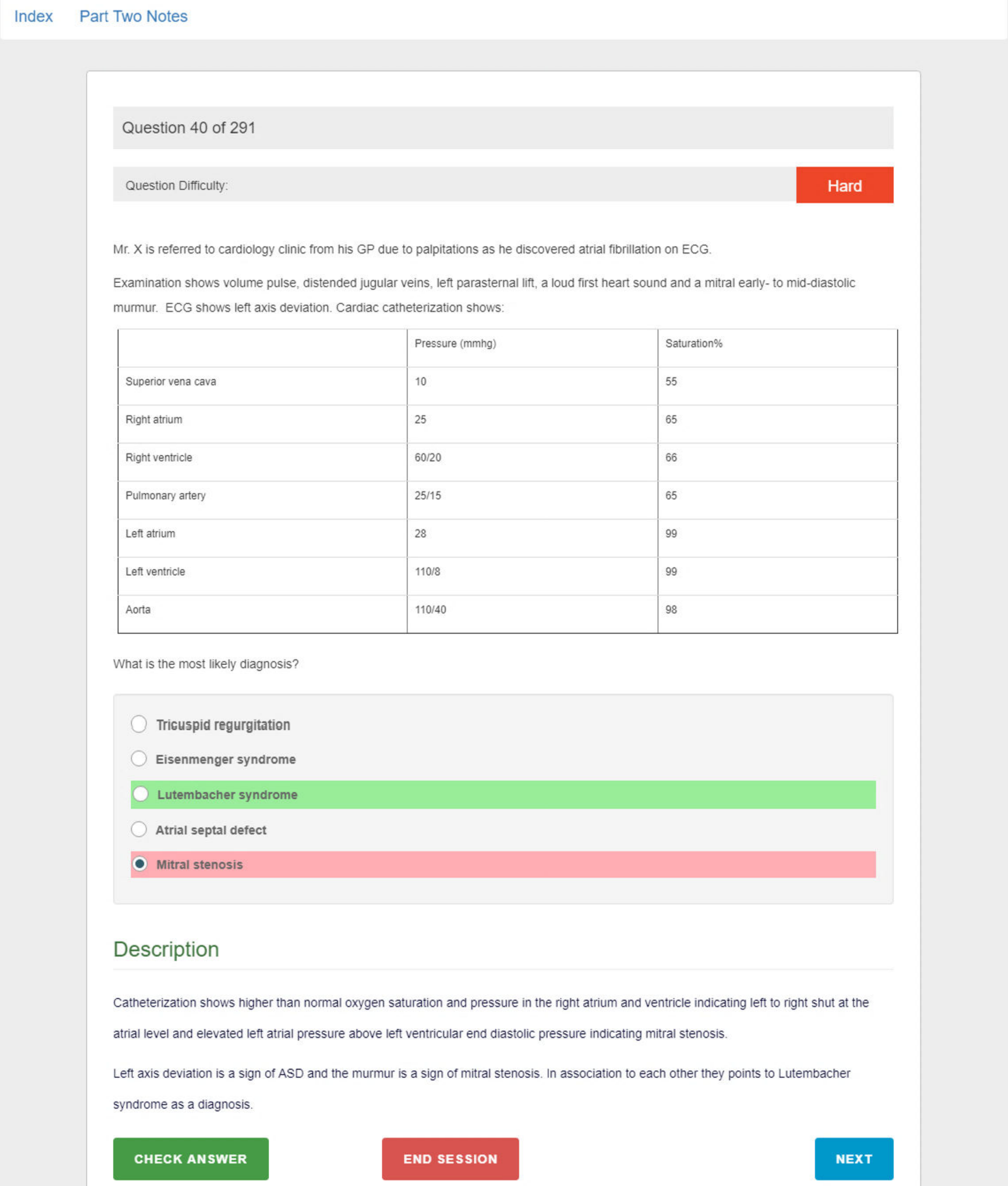
Description

This patient has new onset AF and he is hemodynamically stable, so chemical cardioversion is indicated over electrical cardioversion.

Flecainide or amiodarone are indicated as chemical cardioversion if there is no evidence of structural or ischaemic heart disease or amiodarone if there is evidence of structural heart disease as in this case.

Session Statistics

Answered: 38
✓ Correct: 5
✕ Incorrect: 33
Average Score: 13.16 %



Question 40 of 291

Question Difficulty: Hard

Mr. X is referred to cardiology clinic from his GP due to palpitations as he discovered atrial fibrillation on ECG.

Examination shows volume pulse, distended jugular veins, left parasternal lift, a loud first heart sound and a mitral early- to mid-diastolic murmur. ECG shows left axis deviation. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	25	65
Right ventricle	60/20	66
Pulmonary artery	25/15	65
Left atrium	28	99
Left ventricle	110/8	99
Aorta	110/40	98

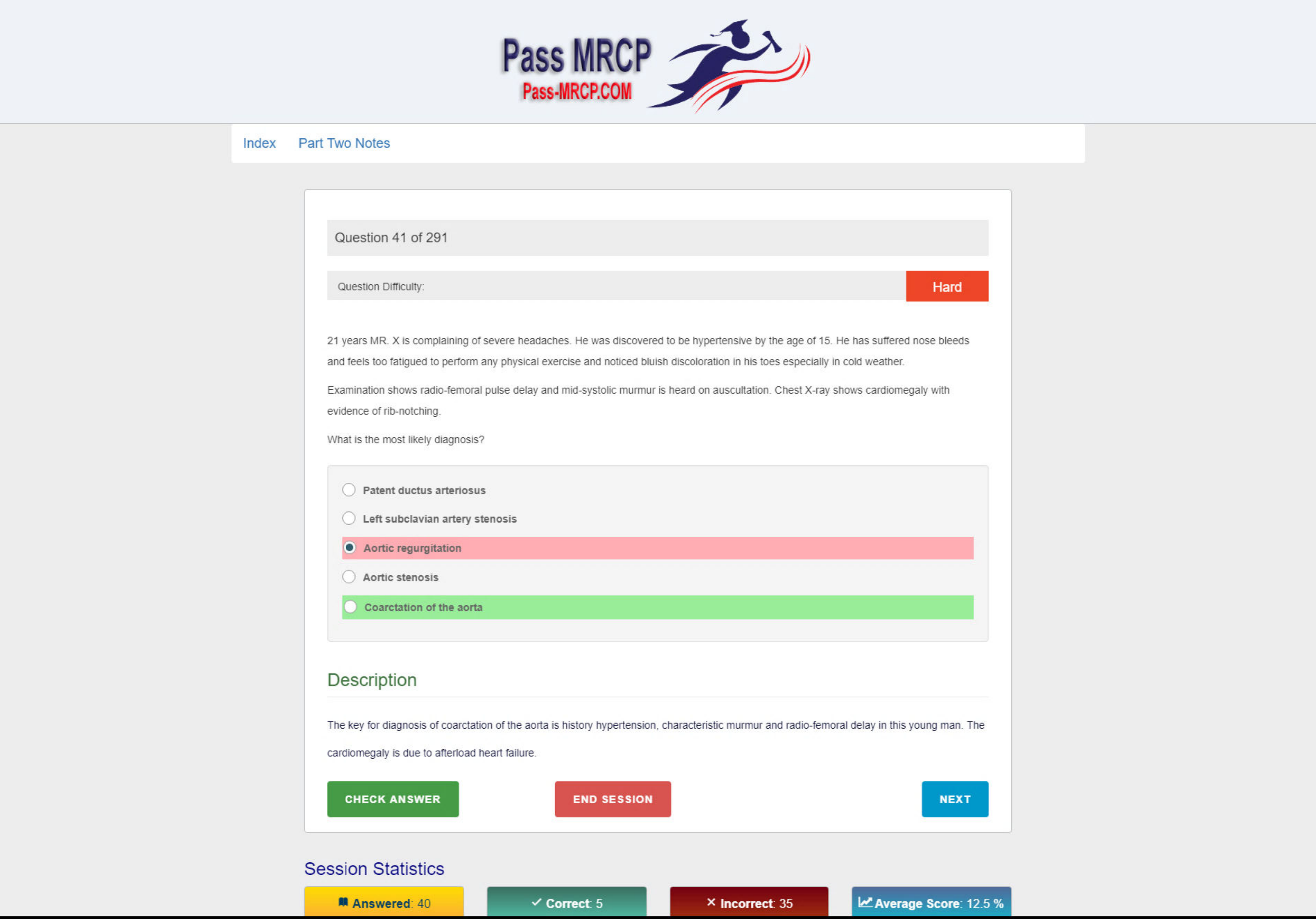
What is the most likely diagnosis?

- ○ **Tricuspid regurgitation**
- ○ **Eisenmenger syndrome**
- ○ **Lutembacher syndrome**
- ○ **Atrial septal defect**
- ● **Mitral stenosis**

Description

Catheterization shows higher than normal oxygen saturation and pressure in the right atrium and ventricle indicating left to right shut at the atrial level and elevated left atrial pressure above left ventricular end diastolic pressure indicating mitral stenosis.

Left axis deviation is a sign of ASD and the murmur is a sign of mitral stenosis. In association to each other they points to Lutembacher syndrome as a diagnosis.



Question 41 of 291

Question Difficulty: Hard

21 years MR. X is complaining of severe headaches. He was discovered to be hypertensive by the age of 15. He has suffered nose bleeds and feels too fatigued to perform any physical exercise and noticed bluish discoloration in his toes especially in cold weather.

Examination shows radio-femoral pulse delay and mid-systolic murmur is heard on auscultation. Chest X-ray shows cardiomegaly with evidence of rib-notching.

What is the most likely diagnosis?

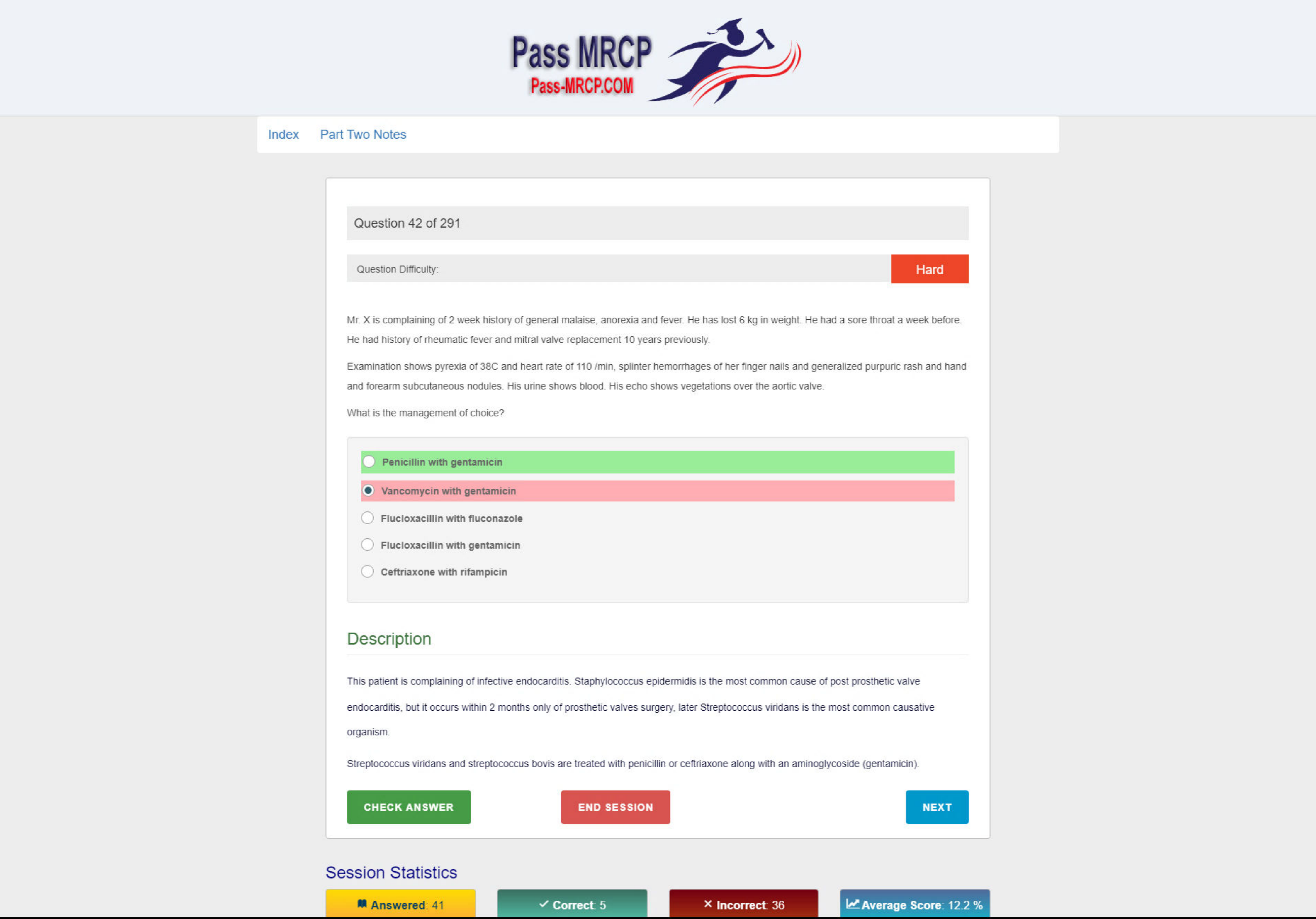
- ○ **Patent ductus arteriosus**
- ○ **Left subclavian artery stenosis**
- ● **Aortic regurgitation**
- ○ **Aortic stenosis**
- ○ **Coarctation of the aorta**

Description

The key for diagnosis of coarctation of the aorta is history hypertension, characteristic murmur and radio-femoral delay in this young man. The cardiomegaly is due to afterload heart failure.

Session Statistics

Answered: 40
✓ **Correct**: 5
✕ **Incorrect**: 35
Average Score: 12.5 %



Question 42 of 291

Question Difficulty: Hard

Mr. X is complaining of 2 week history of general malaise, anorexia and fever. He has lost 6 kg in weight. He had a sore throat a week before. He had history of rheumatic fever and mitral valve replacement 10 years previously.

Examination shows pyrexia of 38C and heart rate of 110 /min, splinter hemorrhages of her finger nails and generalized purpuric rash and hand and forearm subcutaneous nodules. His urine shows blood. His echo shows vegetations over the aortic valve.

What is the management of choice?

- ○ **Penicillin with gentamicin**
- ● **Vancomycin with gentamicin**
- ○ **Flucloxacillin with fluconazole**
- ○ **Flucloxacillin with gentamicin**
- ○ **Ceftriaxone with rifampicin**

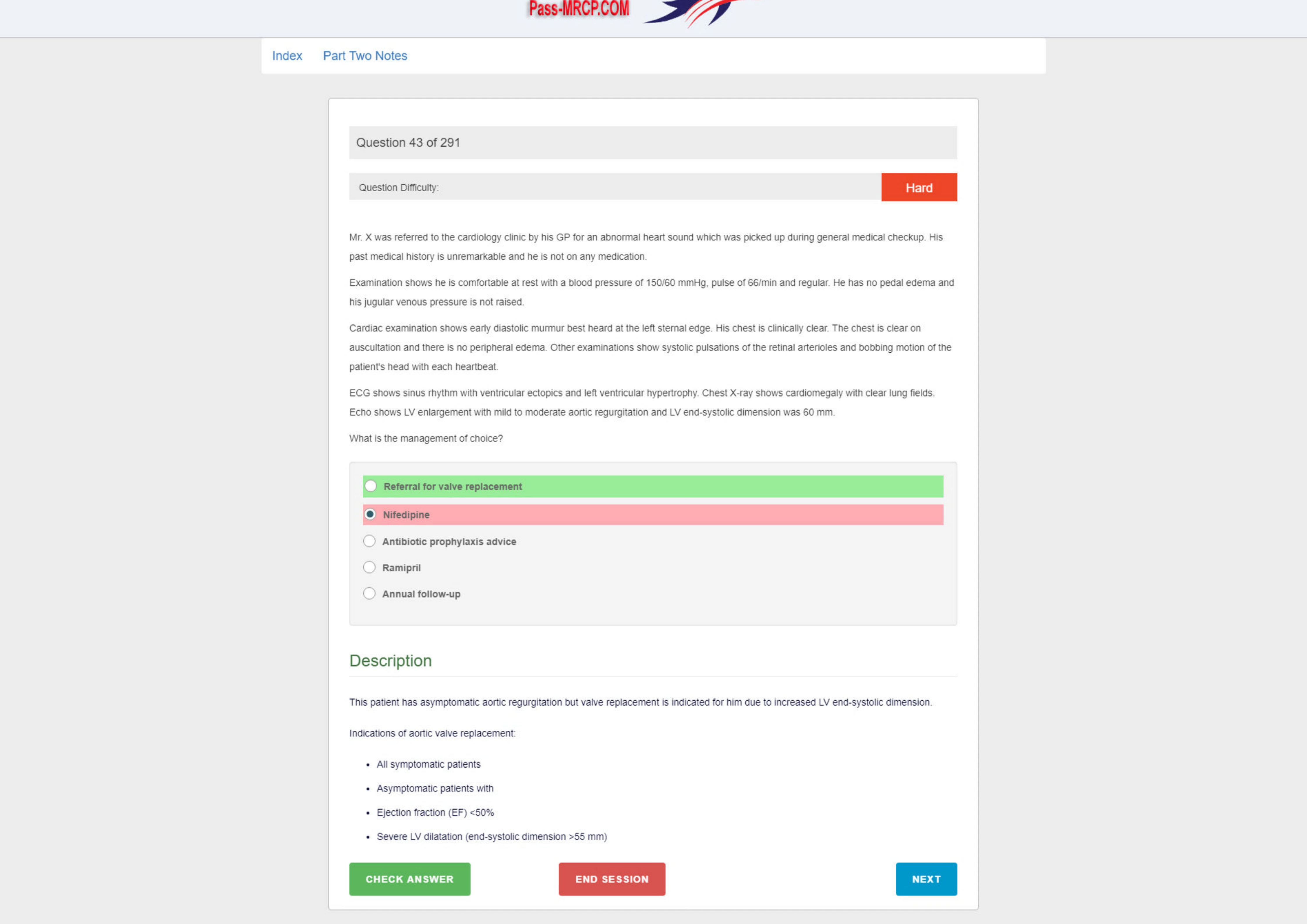
Description

This patient is complaining of infective endocarditis. Staphylococcus epidermidis is the most common cause of post prosthetic valve endocarditis, but it occurs within 2 months only of prosthetic valves surgery, later Streptococcus viridans is the most common causative organism.

Streptococcus viridans and streptococcus bovis are treated with penicillin or ceftriaxone along with an aminoglycoside (gentamicin).

Session Statistics

Answered: 41
Correct: 5
Incorrect: 36
Average Score: 12.2 %



Question 43 of 291

Question Difficulty: **Hard**

Mr. X was referred to the cardiology clinic by his GP for an abnormal heart sound which was picked up during general medical checkup. His past medical history is unremarkable and he is not on any medication.

Examination shows he is comfortable at rest with a blood pressure of 150/60 mmHg, pulse of 66/min and regular. He has no pedal edema and his jugular venous pressure is not raised.

Cardiac examination shows early diastolic murmur best heard at the left sternal edge. His chest is clinically clear. The chest is clear on auscultation and there is no peripheral edema. Other examinations show systolic pulsations of the retinal arterioles and bobbing motion of the patient's head with each heartbeat.

ECG shows sinus rhythm with ventricular ectopics and left ventricular hypertrophy. Chest X-ray shows cardiomegaly with clear lung fields. Echo shows LV enlargement with mild to moderate aortic regurgitation and LV end-systolic dimension was 60 mm.

What is the management of choice?

○ **Referral for valve replacement**

● **Nifedipine**

○ **Antibiotic prophylaxis advice**

○ **Ramipril**

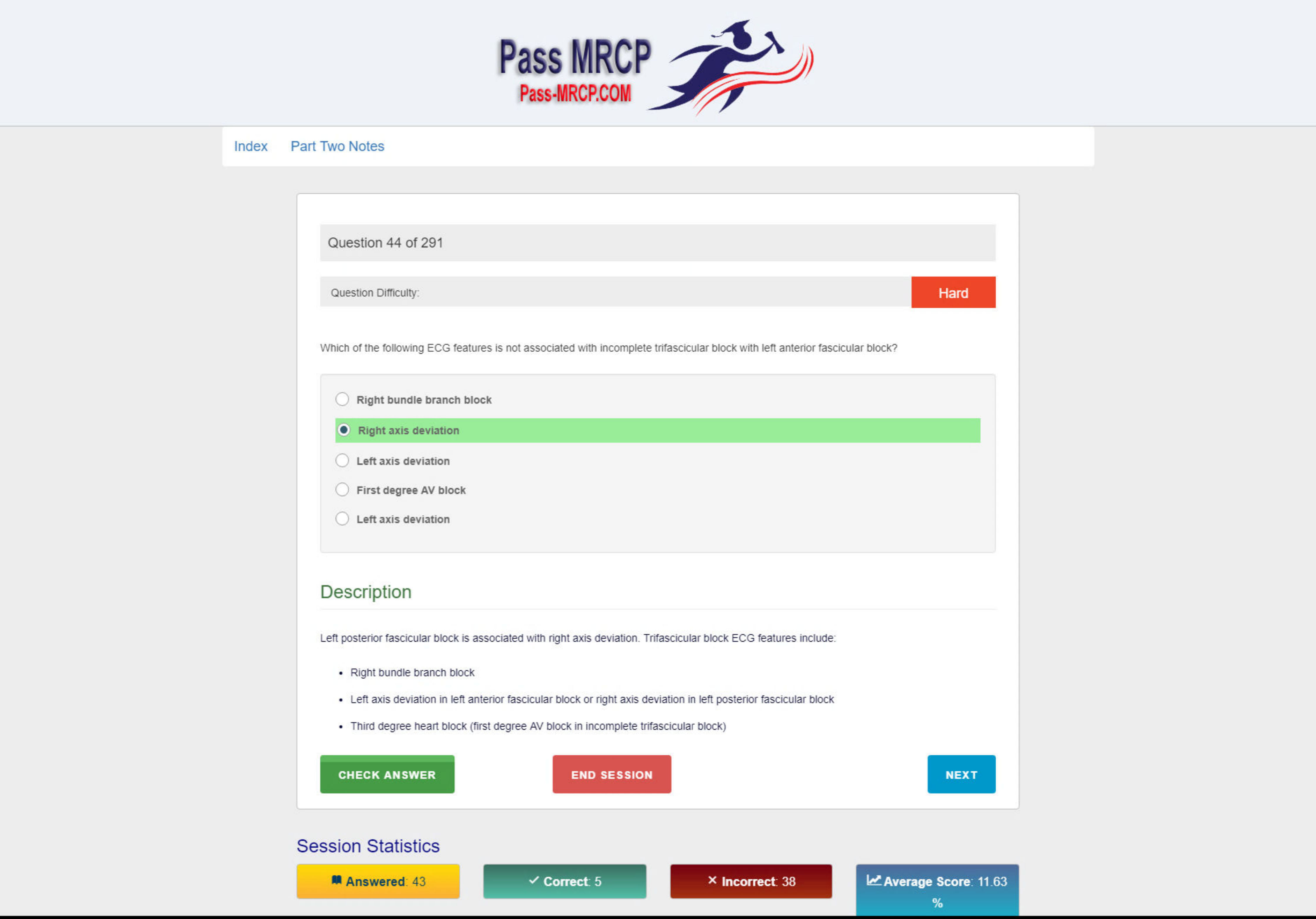
○ **Annual follow-up**

Description

This patient has asymptomatic aortic regurgitation but valve replacement is indicated for him due to increased LV end-systolic dimension.

Indications of aortic valve replacement:

- All symptomatic patients
- Asymptomatic patients with
- Ejection fraction (EF) <50%
- Severe LV dilatation (end-systolic dimension >55 mm)



Question 44 of 291

Question Difficulty: Hard

Which of the following ECG features is not associated with incomplete trifascicular block with left anterior fascicular block?

○ Right bundle branch block
● Right axis deviation
○ Left axis deviation
○ First degree AV block
○ Left axis deviation

Description

Left posterior fascicular block is associated with right axis deviation. Trifascicular block ECG features include:

- Right bundle branch block
- Left axis deviation in left anterior fascicular block or right axis deviation in left posterior fascicular block
- Third degree heart block (first degree AV block in incomplete trifascicular block)

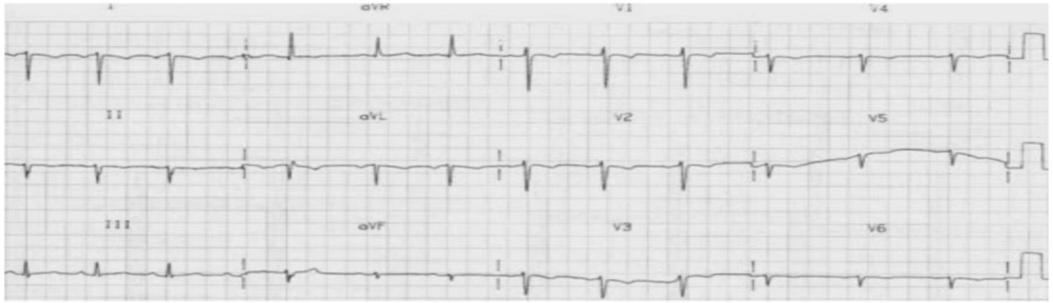
Session Statistics

Answered: 43
✓ Correct: 5
× Incorrect: 38
Average Score: 11.63 %

Question 45 of 291

Question Difficulty: **Hard**

20 years Mr. X was referred from his GP due to unusual findings on ECG discovered accidentally during routine checkup. The ECG is shown in the image.



He had never complained of any cardiac symptoms. He has no past history except repeated chest infections started from his childhood.

What is the most likely cause of his ECG findings?

○ **Brugada Syndrome**
● **Long QT syndrome**
○ **Dextrocardia**
○ **WPW syndrome**
○ **Arrhythmogenic right ventricular cardiomyopathy**

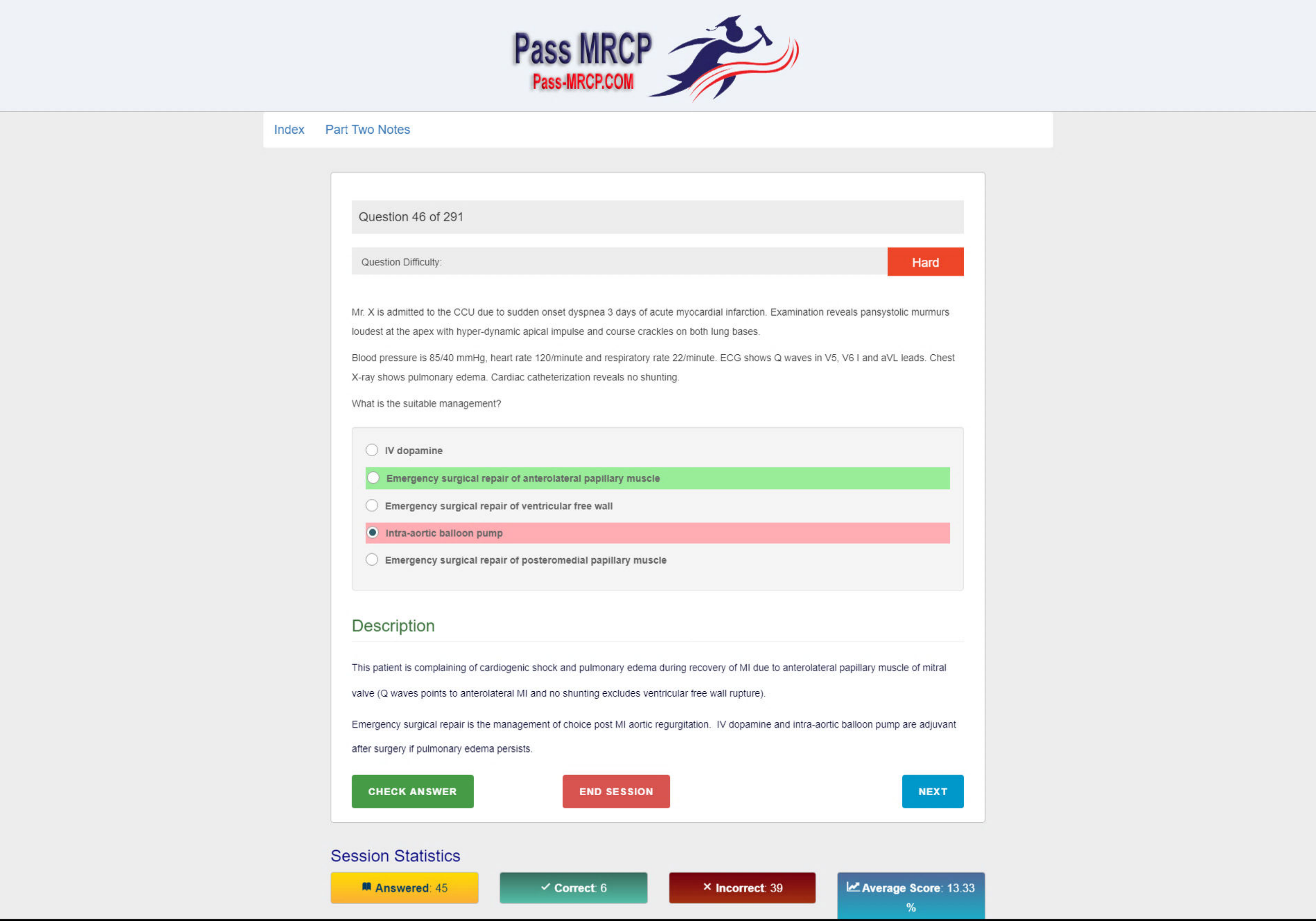
Description

The ECG shows signs of dextrocardia and he is complaining of Kartagener syndrome or immotile cilia syndrome.

Dextrocardia ECG features:

- Right axis deviation
- Positive QRS complexes (with upright P and T waves) in aVR
- 'Global negativity' of all complexes Lead I (inverted P wave, negative QRS, inverted T wave)
- Absent R-wave progression in the chest leads (dominant S waves throughout)

CHECK ANSWER **END SESSION** **NEXT**



Question 46 of 291

Question Difficulty: Hard

Mr. X is admitted to the CCU due to sudden onset dyspnea 3 days of acute myocardial infarction. Examination reveals pansystolic murmurs loudest at the apex with hyper-dynamic apical impulse and course crackles on both lung bases.

Blood pressure is 85/40 mmHg, heart rate 120/minute and respiratory rate 22/minute. ECG shows Q waves in V5, V6 I and aVL leads. Chest X-ray shows pulmonary edema. Cardiac catheterization reveals no shunting.

What is the suitable management?

- ○ **IV dopamine**
- ○ **Emergency surgical repair of anterolateral papillary muscle**
- ○ **Emergency surgical repair of ventricular free wall**
- ● **Intra-aortic balloon pump**
- ○ **Emergency surgical repair of posteromedial papillary muscle**

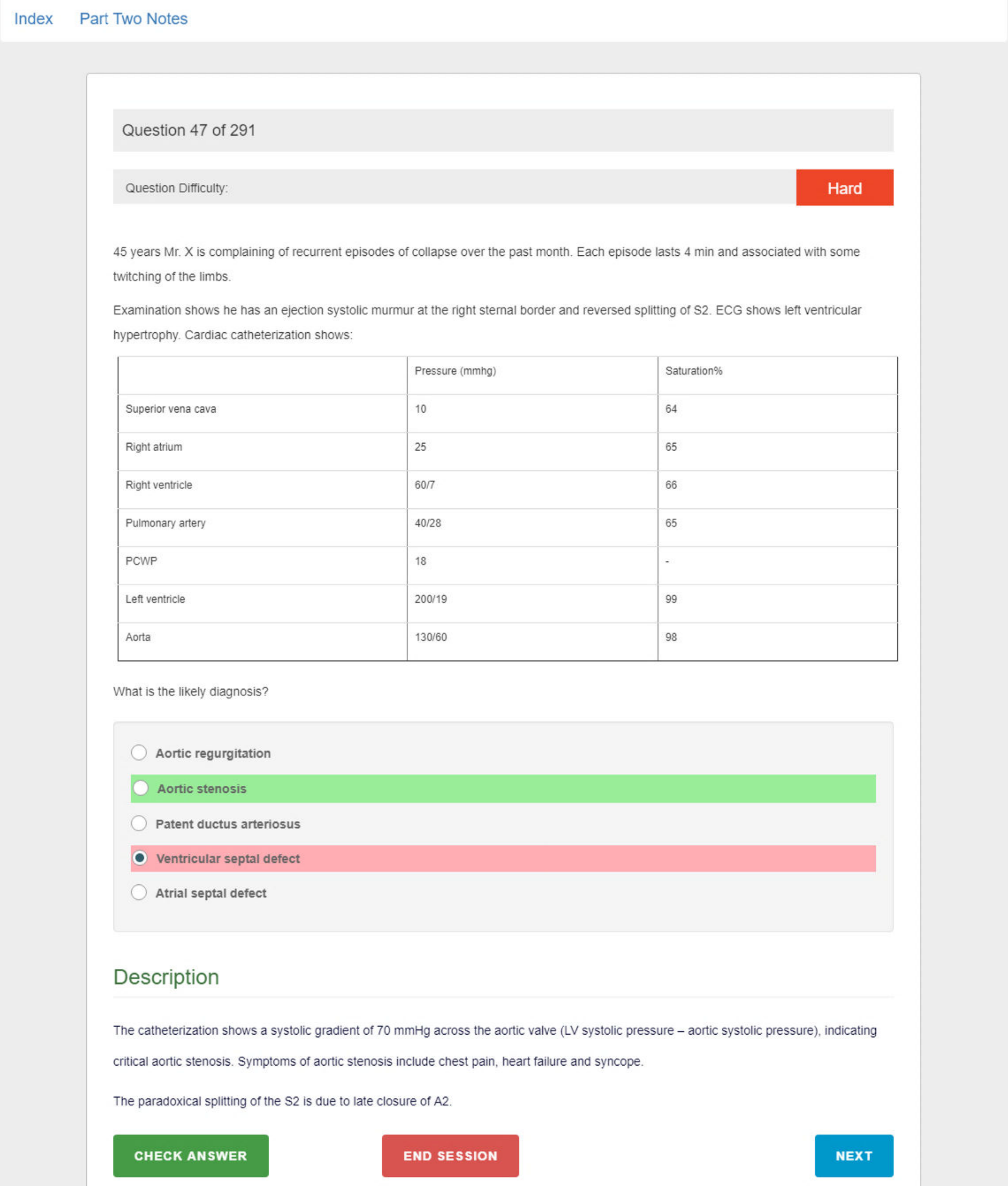
Description

This patient is complaining of cardiogenic shock and pulmonary edema during recovery of MI due to anterolateral papillary muscle of mitral valve (Q waves points to anterolateral MI and no shunting excludes ventricular free wall rupture).

Emergency surgical repair is the management of choice post MI aortic regurgitation. IV dopamine and intra-aortic balloon pump are adjuvant after surgery if pulmonary edema persists.

Session Statistics

Answered: 45
✓ **Correct**: 6
✕ **Incorrect**: 39
Average Score: 13.33 %



Question 47 of 291

Question Difficulty: Hard

45 years Mr. X is complaining of recurrent episodes of collapse over the past month. Each episode lasts 4 min and associated with some twitching of the limbs.

Examination shows he has an ejection systolic murmur at the right sternal border and reversed splitting of S2. ECG shows left ventricular hypertrophy. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	64
Right atrium	25	65
Right ventricle	60/7	66
Pulmonary artery	40/28	65
PCWP	18	-
Left ventricle	200/19	99
Aorta	130/60	98

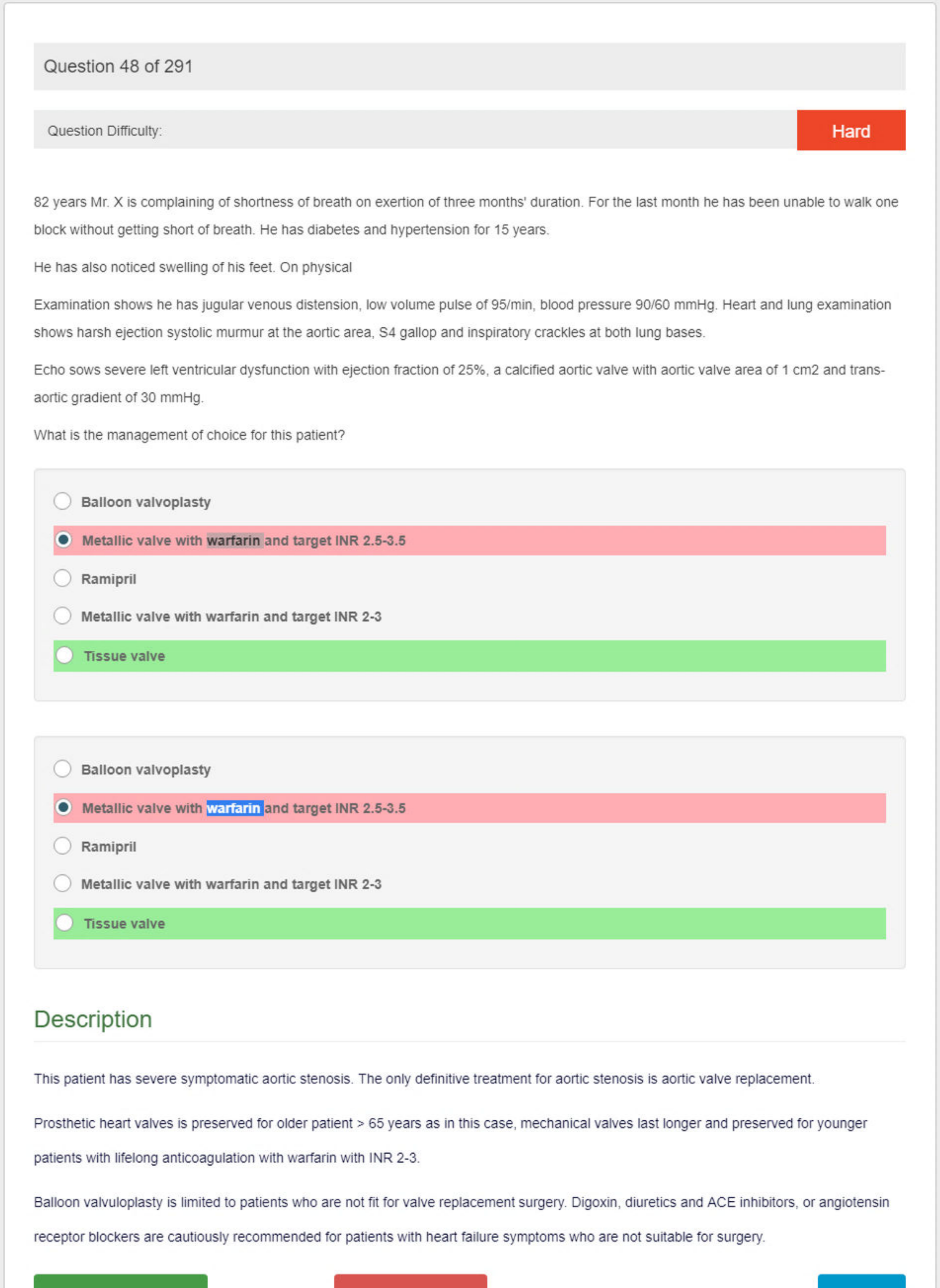
What is the likely diagnosis?

- ○ **Aortic regurgitation**
- ○ **Aortic stenosis**
- ○ **Patent ductus arteriosus**
- ● **Ventricular septal defect**
- ○ **Atrial septal defect**

Description

The catheterization shows a systolic gradient of 70 mmHg across the aortic valve (LV systolic pressure – aortic systolic pressure), indicating critical aortic stenosis. Symptoms of aortic stenosis include chest pain, heart failure and syncope.

The paradoxical splitting of the S2 is due to late closure of A2.



Question 48 of 291

Question Difficulty: **Hard**

82 years Mr. X is complaining of shortness of breath on exertion of three months' duration. For the last month he has been unable to walk one block without getting short of breath. He has diabetes and hypertension for 15 years.

He has also noticed swelling of his feet. On physical

Examination shows he has jugular venous distension, low volume pulse of 95/min, blood pressure 90/60 mmHg. Heart and lung examination shows harsh ejection systolic murmur at the aortic area, S4 gallop and inspiratory crackles at both lung bases.

Echo sows severe left ventricular dysfunction with ejection fraction of 25%, a calcified aortic valve with aortic valve area of 1 cm2 and trans-aortic gradient of 30 mmHg.

What is the management of choice for this patient?

- ○ **Balloon valvoplasty**
- ● **Metallic valve with warfarin and target INR 2.5-3.5**
- ○ **Ramipril**
- ○ **Metallic valve with warfarin and target INR 2-3**
- ○ **Tissue valve**

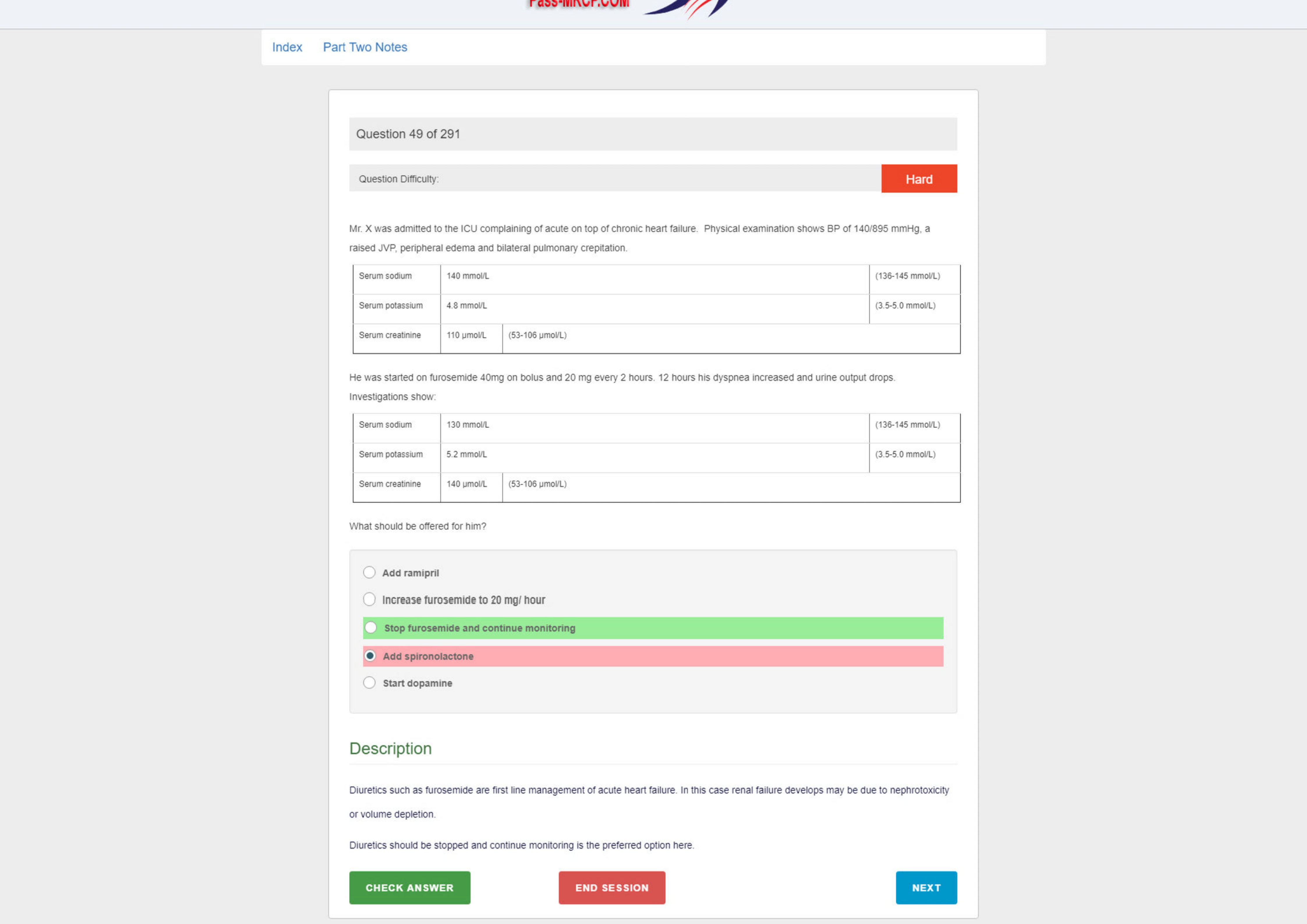
- ○ **Balloon valvoplasty**
- ● **Metallic valve with warfarin and target INR 2.5-3.5**
- ○ **Ramipril**
- ○ **Metallic valve with warfarin and target INR 2-3**
- ○ **Tissue valve**

Description

This patient has severe symptomatic aortic stenosis. The only definitive treatment for aortic stenosis is aortic valve replacement.

Prosthetic heart valves is preserved for older patient > 65 years as in this case, mechanical valves last longer and preserved for younger patients with lifelong anticoagulation with warfarin with INR 2-3.

Balloon valvuloplasty is limited to patients who are not fit for valve replacement surgery. Digoxin, diuretics and ACE inhibitors, or angiotensin receptor blockers are cautiously recommended for patients with heart failure symptoms who are not suitable for surgery.



Question 49 of 291

Question Difficulty: Hard

Mr. X was admitted to the ICU complaining of acute on top of chronic heart failure. Physical examination shows BP of 140/895 mmHg, a raised JVP, peripheral edema and bilateral pulmonary crepitation.

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	110 µmol/L	(53-106 µmol/L)

He was started on furosemide 40mg on bolus and 20 mg every 2 hours. 12 hours his dyspnea increased and urine output drops. Investigations show:

Serum sodium	130 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	140 µmol/L	(53-106 µmol/L)

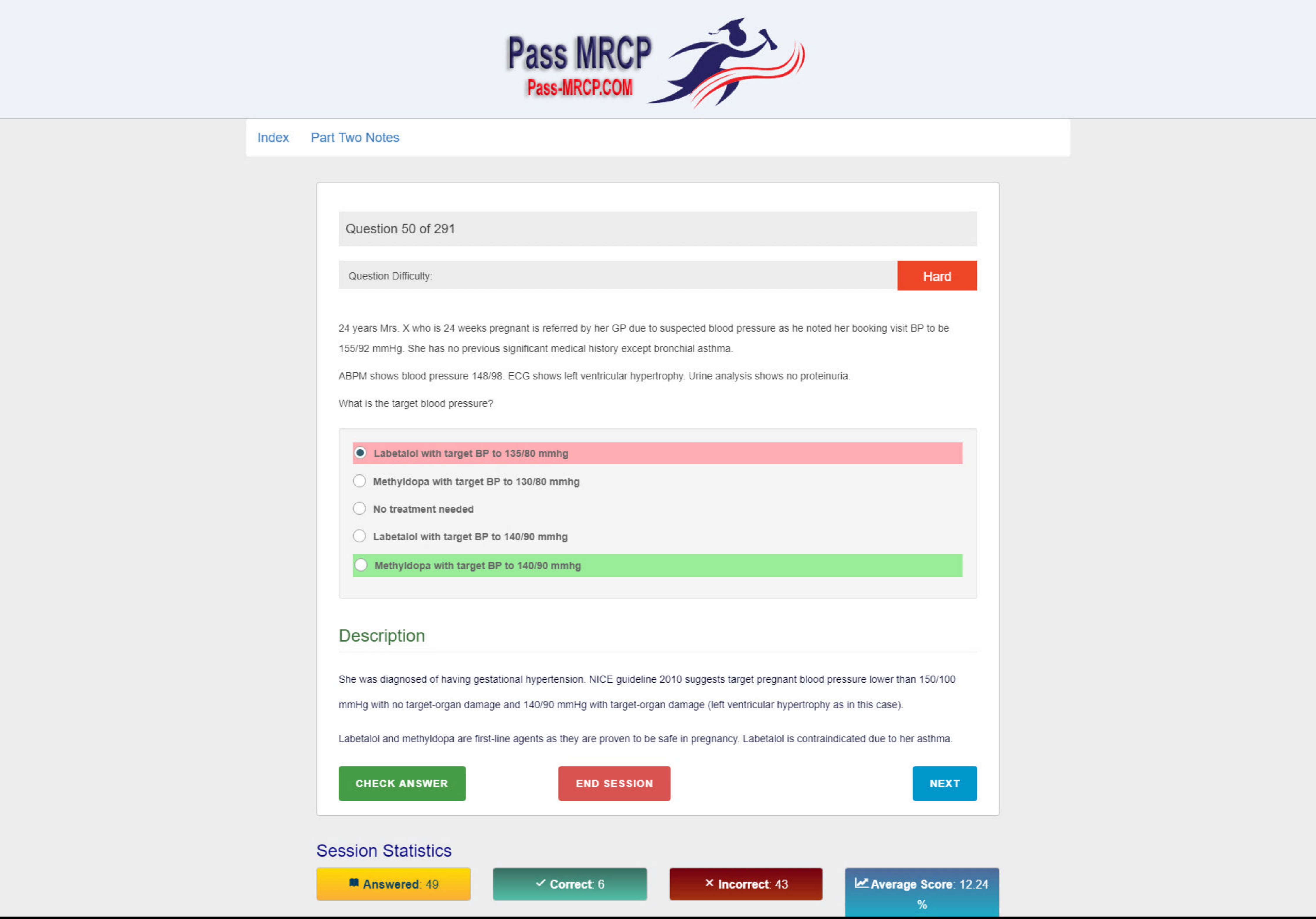
What should be offered for him?

- ○ **Add ramipril**
- ○ **Increase furosemide to 20 mg/ hour**
- ○ **Stop furosemide and continue monitoring**
- ● **Add spironolactone**
- ○ **Start dopamine**

Description

Diuretics such as furosemide are first line management of acute heart failure. In this case renal failure develops may be due to nephrotoxicity or volume depletion.

Diuretics should be stopped and continue monitoring is the preferred option here.



Question 50 of 291

Question Difficulty: Hard

24 years Mrs. X who is 24 weeks pregnant is referred by her GP due to suspected blood pressure as he noted her booking visit BP to be 155/92 mmHg. She has no previous significant medical history except bronchial asthma.

ABPM shows blood pressure 148/98. ECG shows left ventricular hypertrophy. Urine analysis shows no proteinuria.

What is the target blood pressure?

- ● **Labetalol with target BP to 135/80 mmhg**
- ○ **Methyldopa with target BP to 130/80 mmhg**
- ○ **No treatment needed**
- ○ **Labetalol with target BP to 140/90 mmhg**
- ○ **Methyldopa with target BP to 140/90 mmhg**

Description

She was diagnosed of having gestational hypertension. NICE guideline 2010 suggests target pregnant blood pressure lower than 150/100 mmHg with no target-organ damage and 140/90 mmHg with target-organ damage (left ventricular hypertrophy as in this case).

Labetalol and methyldopa are first-line agents as they are proven to be safe in pregnancy. Labetalol is contraindicated due to her asthma.

Session Statistics

Answered: 49

✓ **Correct**: 6

× **Incorrect**: 43

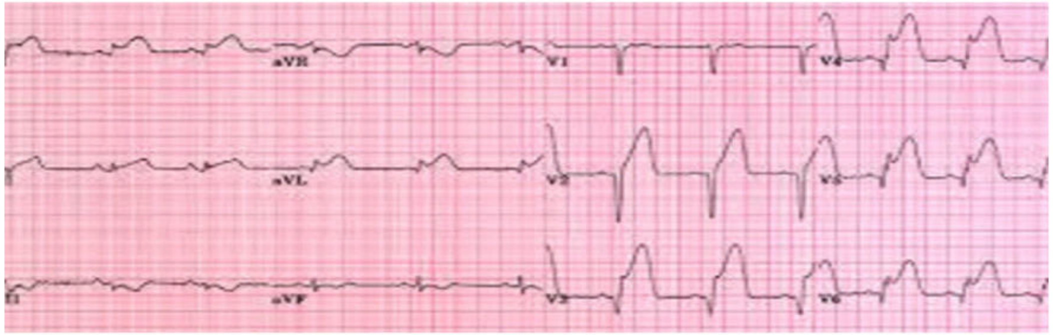
Average Score: 12.24 %

Question 51 of 291

Question Difficulty: **Hard**

Mr. X the 45 years old was admitted to the emergency room due to central crushing chest pain which started 1 hour ago. He was diagnosed of having MI.

His ECG shows in the following image.



Which coronary artery is usually obstructed?

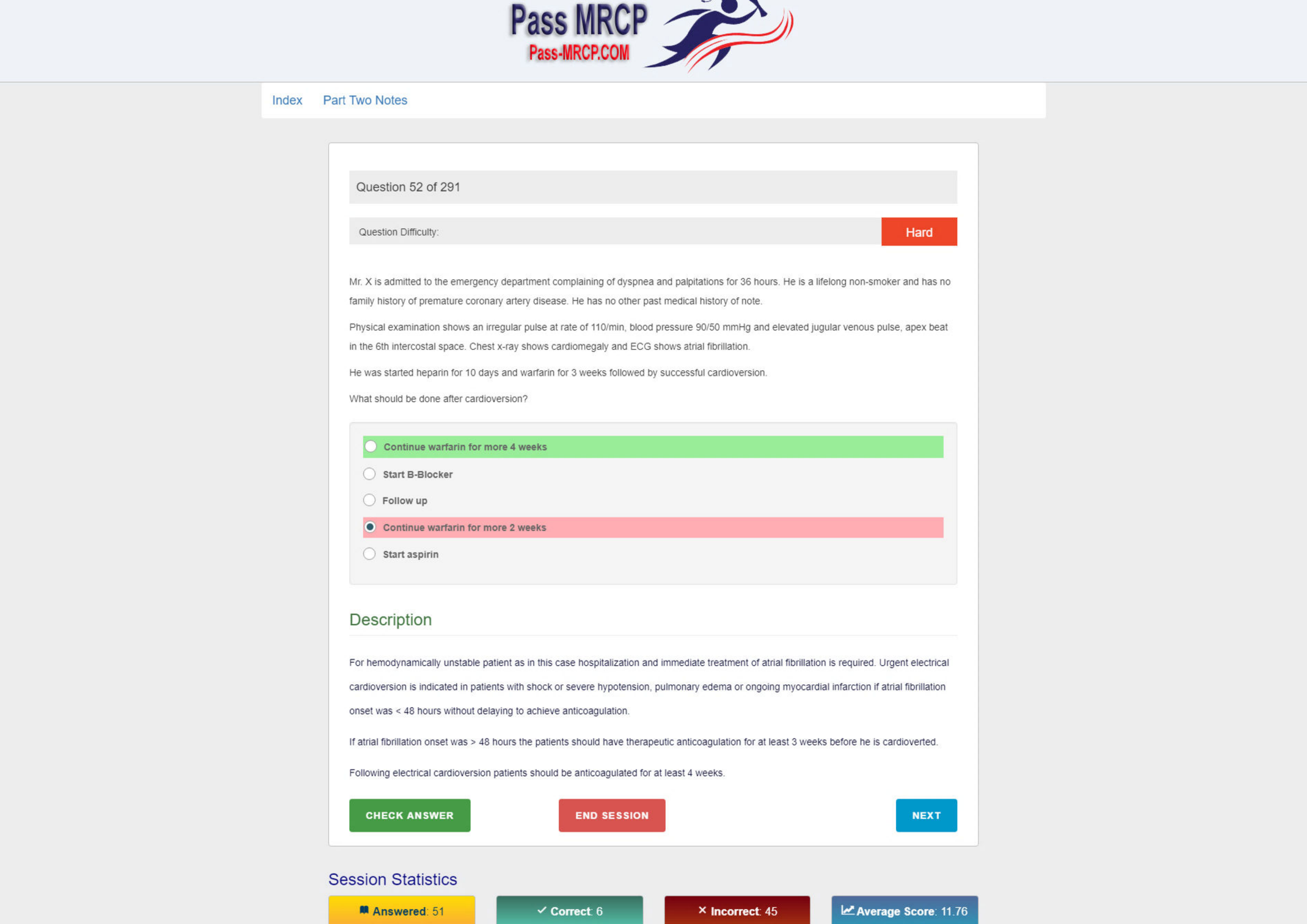
- ○ **Right coronary artery**
- ○ **Left main stem artery**
- ○ **Left circumflex artery**
- ● **Right posterior descending artery**
- ○ **Left anterior descending artery**

Description

Left circumflex artery obstruction causes lateral wall MI which causes ST elevation in I, aVL and V3-V6

CHECK ANSWER END SESSION NEXT

Session Statistics



Question 52 of 291

Question Difficulty: Hard

Mr. X is admitted to the emergency department complaining of dyspnea and palpitations for 36 hours. He is a lifelong non-smoker and has no family history of premature coronary artery disease. He has no other past medical history of note.

Physical examination shows an irregular pulse at rate of 110/min, blood pressure 90/50 mmHg and elevated jugular venous pulse, apex beat in the 6th intercostal space. Chest x-ray shows cardiomegaly and ECG shows atrial fibrillation.

He was started heparin for 10 days and warfarin for 3 weeks followed by successful cardioversion.

What should be done after cardioversion?

- ○ **Continue warfarin for more 4 weeks**
- ○ **Start B-Blocker**
- ○ **Follow up**
- ● **Continue warfarin for more 2 weeks**
- ○ **Start aspirin**

Description

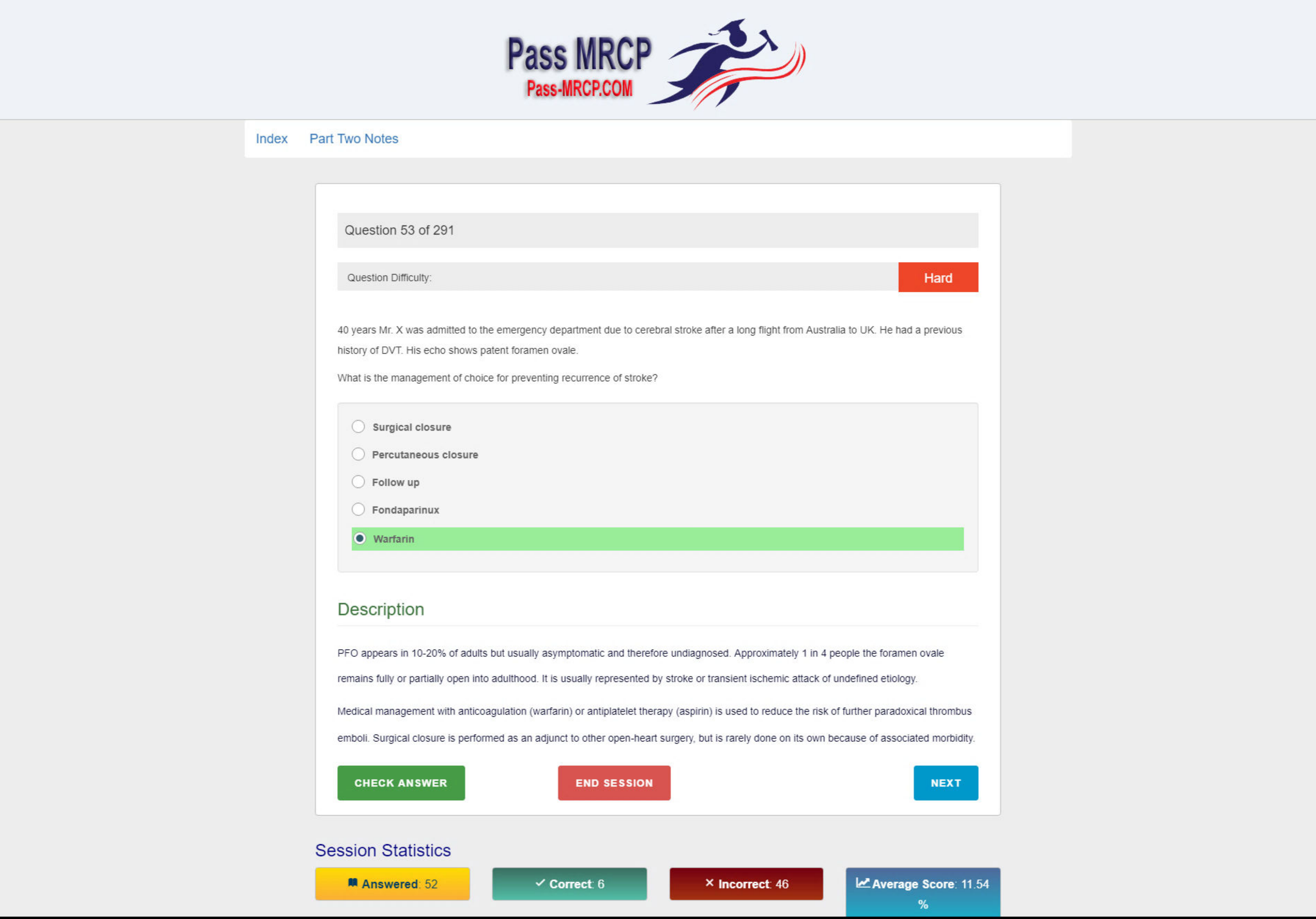
For hemodynamically unstable patient as in this case hospitalization and immediate treatment of atrial fibrillation is required. Urgent electrical cardioversion is indicated in patients with shock or severe hypotension, pulmonary edema or ongoing myocardial infarction if atrial fibrillation onset was < 48 hours without delaying to achieve anticoagulation.

If atrial fibrillation onset was > 48 hours the patients should have therapeutic anticoagulation for at least 3 weeks before he is cardioverted.

Following electrical cardioversion patients should be anticoagulated for at least 4 weeks.

Session Statistics

Answered: 51
Correct: 6
Incorrect: 45
Average Score: 11.76



Question 53 of 291

Question Difficulty: Hard

40 years Mr. X was admitted to the emergency department due to cerebral stroke after a long flight from Australia to UK. He had a previous history of DVT. His echo shows patent foramen ovale.

What is the management of choice for preventing recurrence of stroke?

- ○ Surgical closure
- ○ Percutaneous closure
- ○ Follow up
- ○ Fondaparinux
- ● Warfarin

Description

PFO appears in 10-20% of adults but usually asymptomatic and therefore undiagnosed. Approximately 1 in 4 people the foramen ovale remains fully or partially open into adulthood. It is usually represented by stroke or transient ischemic attack of undefined etiology.

Medical management with anticoagulation (warfarin) or antiplatelet therapy (aspirin) is used to reduce the risk of further paradoxical thrombus emboli. Surgical closure is performed as an adjunct to other open-heart surgery, but is rarely done on its own because of associated morbidity.

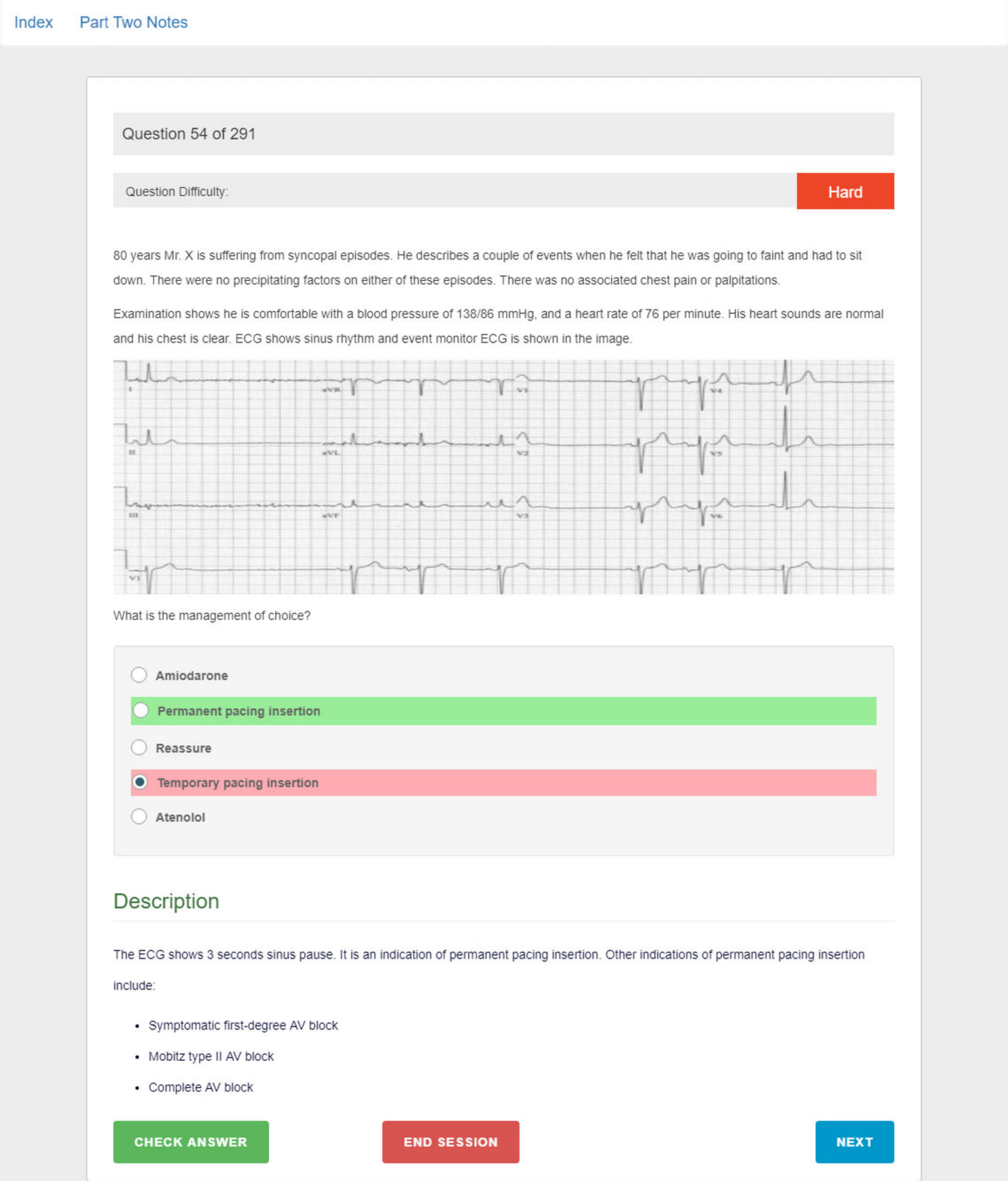
Session Statistics

Answered: 52

Correct: 6

Incorrect: 46

Average Score: 11.54 %



Question 54 of 291

Question Difficulty: Hard

80 years Mr. X is suffering from syncopal episodes. He describes a couple of events when he felt that he was going to faint and had to sit down. There were no precipitating factors on either of these episodes. There was no associated chest pain or palpitations.

Examination shows he is comfortable with a blood pressure of 138/86 mmHg, and a heart rate of 76 per minute. His heart sounds are normal and his chest is clear. ECG shows sinus rhythm and event monitor ECG is shown in the image.

What is the management of choice?

○ **Amiodarone**

○ **Permanent pacing insertion**

○ **Reassure**

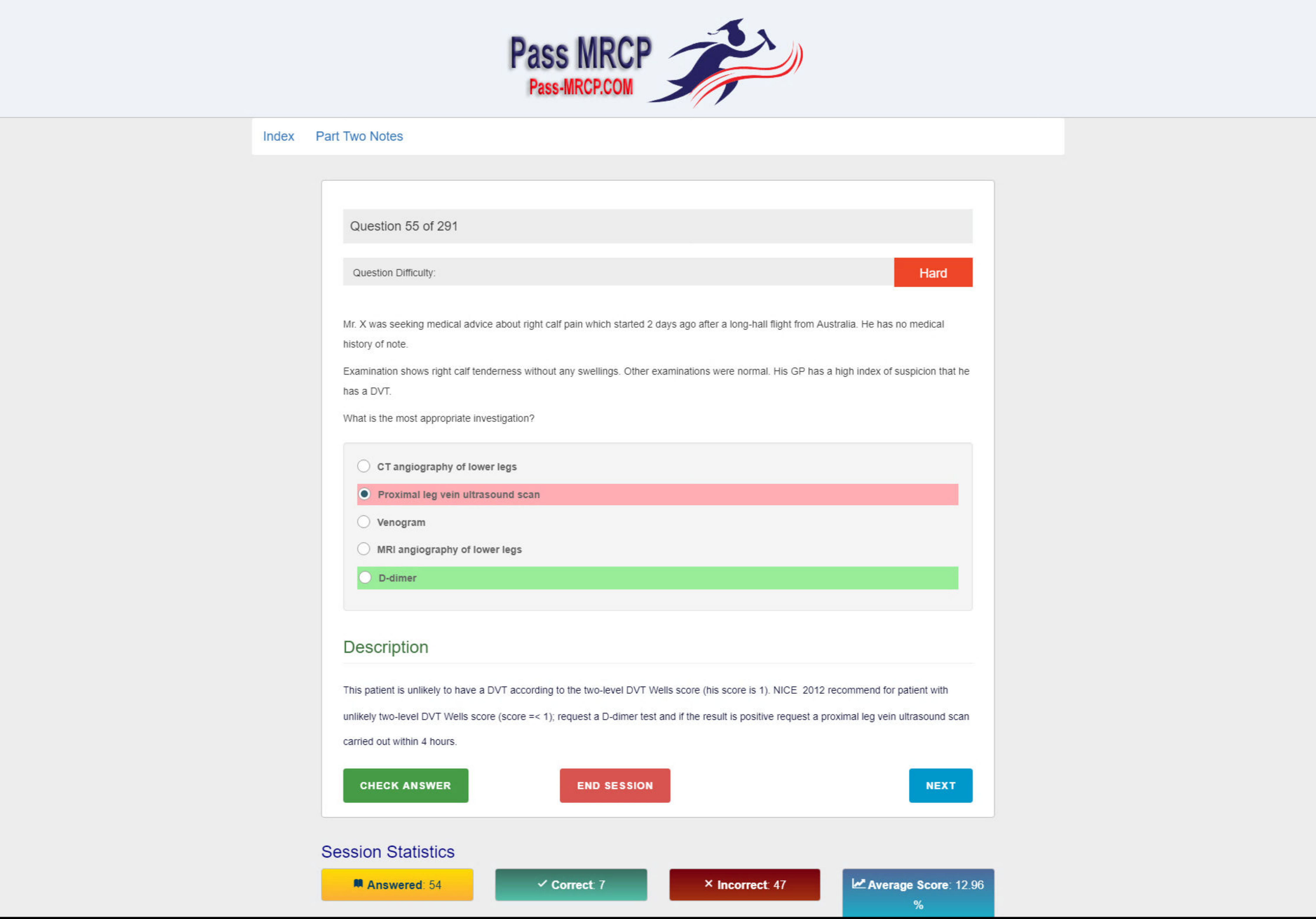
● **Temporary pacing insertion**

○ **Atenolol**

Description

The ECG shows 3 seconds sinus pause. It is an indication of permanent pacing insertion. Other indications of permanent pacing insertion include:

- Symptomatic first-degree AV block
- Mobitz type II AV block
- Complete AV block



Question 55 of 291

Question Difficulty: Hard

Mr. X was seeking medical advice about right calf pain which started 2 days ago after a long-hall flight from Australia. He has no medical history of note.

Examination shows right calf tenderness without any swellings. Other examinations were normal. His GP has a high index of suspicion that he has a DVT.

What is the most appropriate investigation?

- ○ CT angiography of lower legs
- ● Proximal leg vein ultrasound scan
- ○ Venogram
- ○ MRI angiography of lower legs
- ○ D-dimer

Description

This patient is unlikely to have a DVT according to the two-level DVT Wells score (his score is 1). NICE 2012 recommend for patient with unlikely two-level DVT Wells score (score =< 1); request a D-dimer test and if the result is positive request a proximal leg vein ultrasound scan carried out within 4 hours.

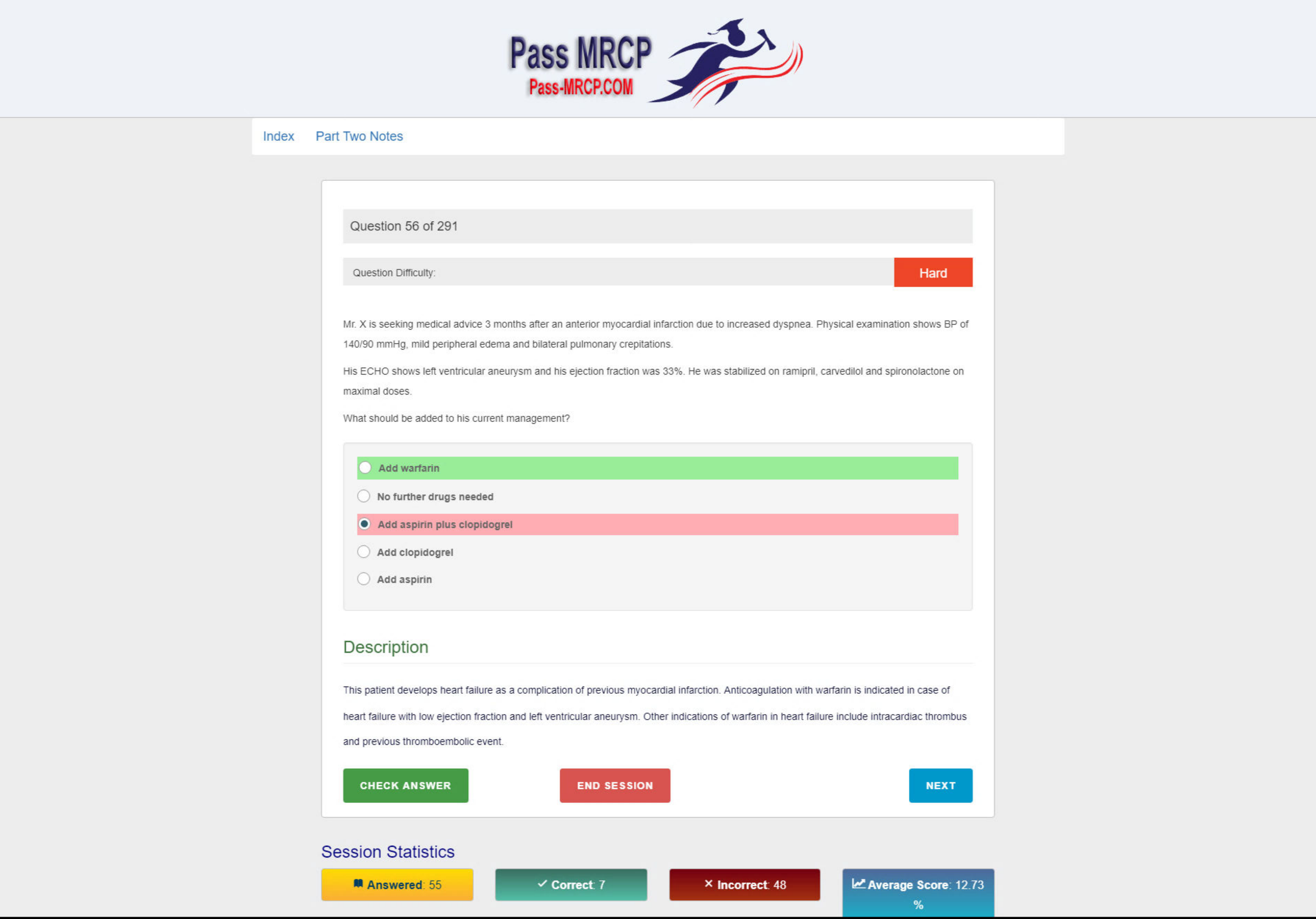
Session Statistics

Answered: 54

✓ Correct: 7

× Incorrect: 47

Average Score: 12.96 %



Question 56 of 291

Question Difficulty: **Hard**

Mr. X is seeking medical advice 3 months after an anterior myocardial infarction due to increased dyspnea. Physical examination shows BP of 140/90 mmHg, mild peripheral edema and bilateral pulmonary crepitations.

His ECHO shows left ventricular aneurysm and his ejection fraction was 33%. He was stabilized on ramipril, carvedilol and spironolactone on maximal doses.

What should be added to his current management?

- ○ **Add warfarin**
- ○ **No further drugs needed**
- ● **Add aspirin plus clopidogrel**
- ○ **Add clopidogrel**
- ○ **Add aspirin**

Description

This patient develops heart failure as a complication of previous myocardial infarction. Anticoagulation with warfarin is indicated in case of heart failure with low ejection fraction and left ventricular aneurysm. Other indications of warfarin in heart failure include intracardiac thrombus and previous thromboembolic event.

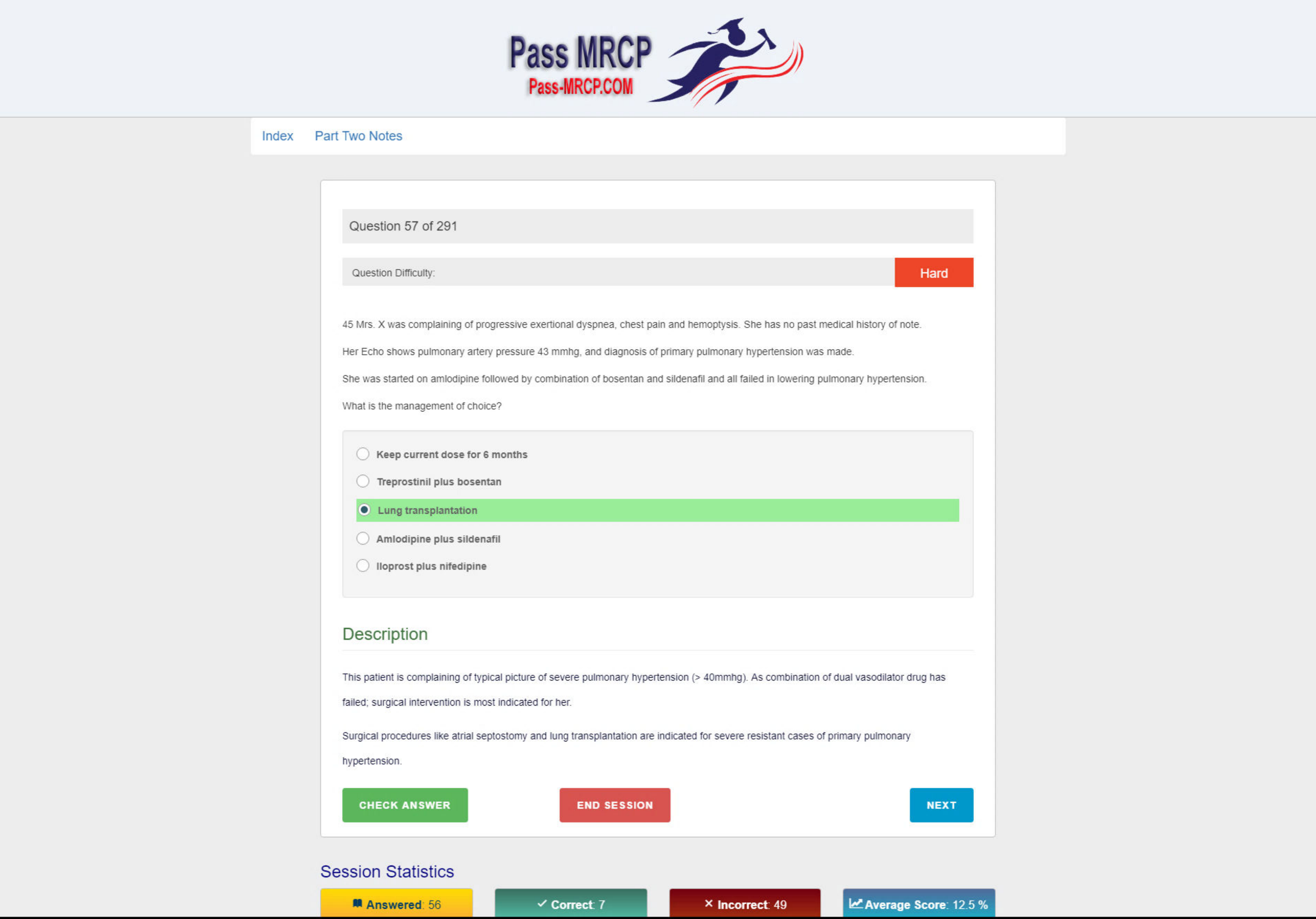
Session Statistics

Answered: 55

✓ **Correct**: 7

× **Incorrect**: 48

Average Score: 12.73 %



Question 57 of 291

Question Difficulty: Hard

45 Mrs. X was complaining of progressive exertional dyspnea, chest pain and hemoptysis. She has no past medical history of note.

Her Echo shows pulmonary artery pressure 43 mmhg, and diagnosis of primary pulmonary hypertension was made.

She was started on amlodipine followed by combination of bosentan and sildenafil and all failed in lowering pulmonary hypertension.

What is the management of choice?

○ **Keep current dose for 6 months**
○ **Treprostinil plus bosentan**
● **Lung transplantation**
○ **Amlodipine plus sildenafil**
○ **Iloprost plus nifedipine**

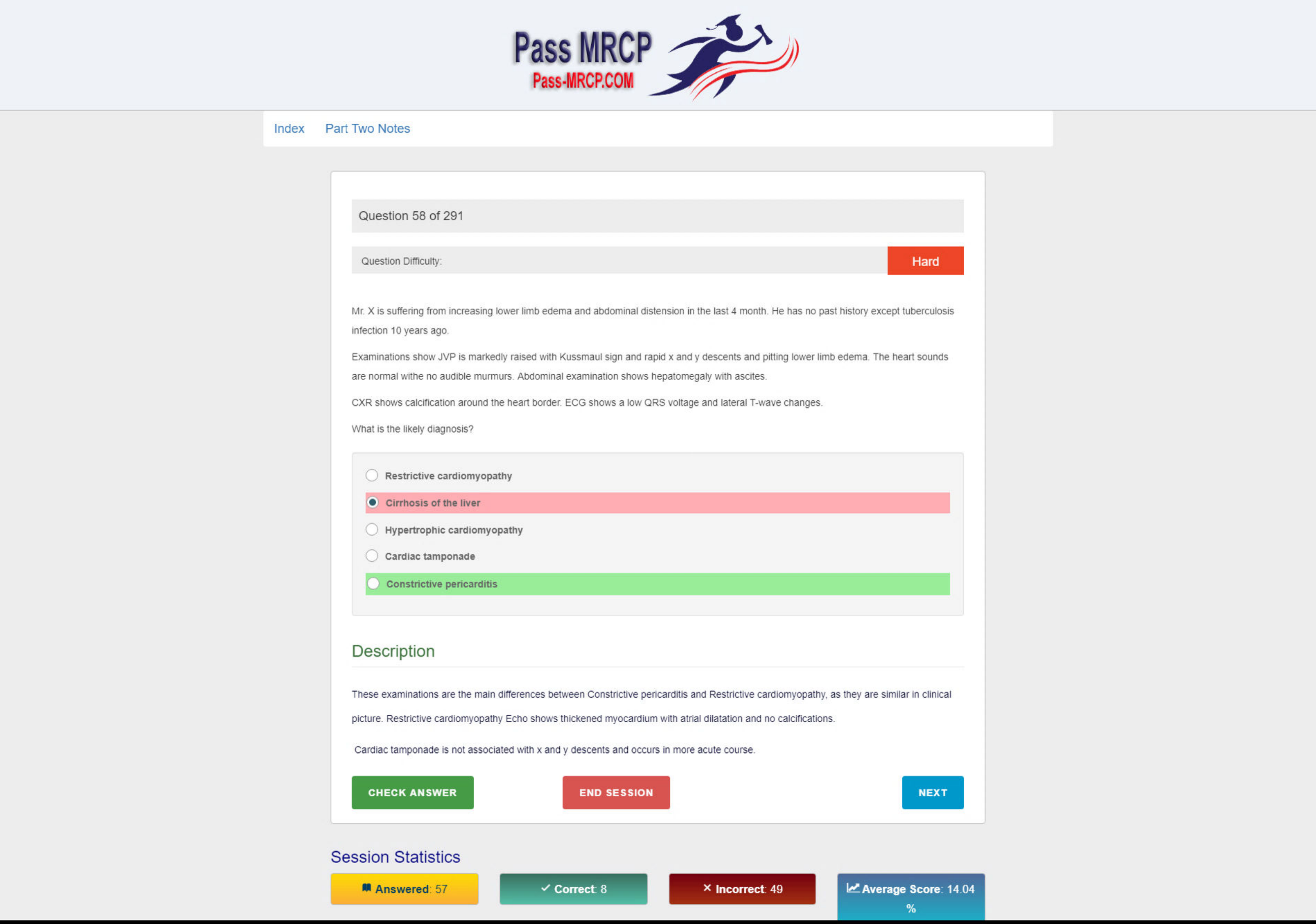
Description

This patient is complaining of typical picture of severe pulmonary hypertension (> 40mmhg). As combination of dual vasodilator drug has failed; surgical intervention is most indicated for her.

Surgical procedures like atrial septostomy and lung transplantation are indicated for severe resistant cases of primary pulmonary hypertension.

Session Statistics

Answered: 56
Correct: 7
Incorrect: 49
Average Score: 12.5 %



Question 58 of 291

Question Difficulty: **Hard**

Mr. X is suffering from increasing lower limb edema and abdominal distension in the last 4 month. He has no past history except tuberculosis infection 10 years ago.

Examinations show JVP is markedly raised with Kussmaul sign and rapid x and y descents and pitting lower limb edema. The heart sounds are normal withe no audible murmurs. Abdominal examination shows hepatomegaly with ascites.

CXR shows calcification around the heart border. ECG shows a low QRS voltage and lateral T-wave changes.

What is the likely diagnosis?

- ○ **Restrictive cardiomyopathy**
- ● **Cirrhosis of the liver**
- ○ **Hypertrophic cardiomyopathy**
- ○ **Cardiac tamponade**
- ○ **Constrictive pericarditis**

Description

These examinations are the main differences between Constrictive pericarditis and Restrictive cardiomyopathy, as they are similar in clinical picture. Restrictive cardiomyopathy Echo shows thickened myocardium with atrial dilatation and no calcifications.

Cardiac tamponade is not associated with x and y descents and occurs in more acute course.

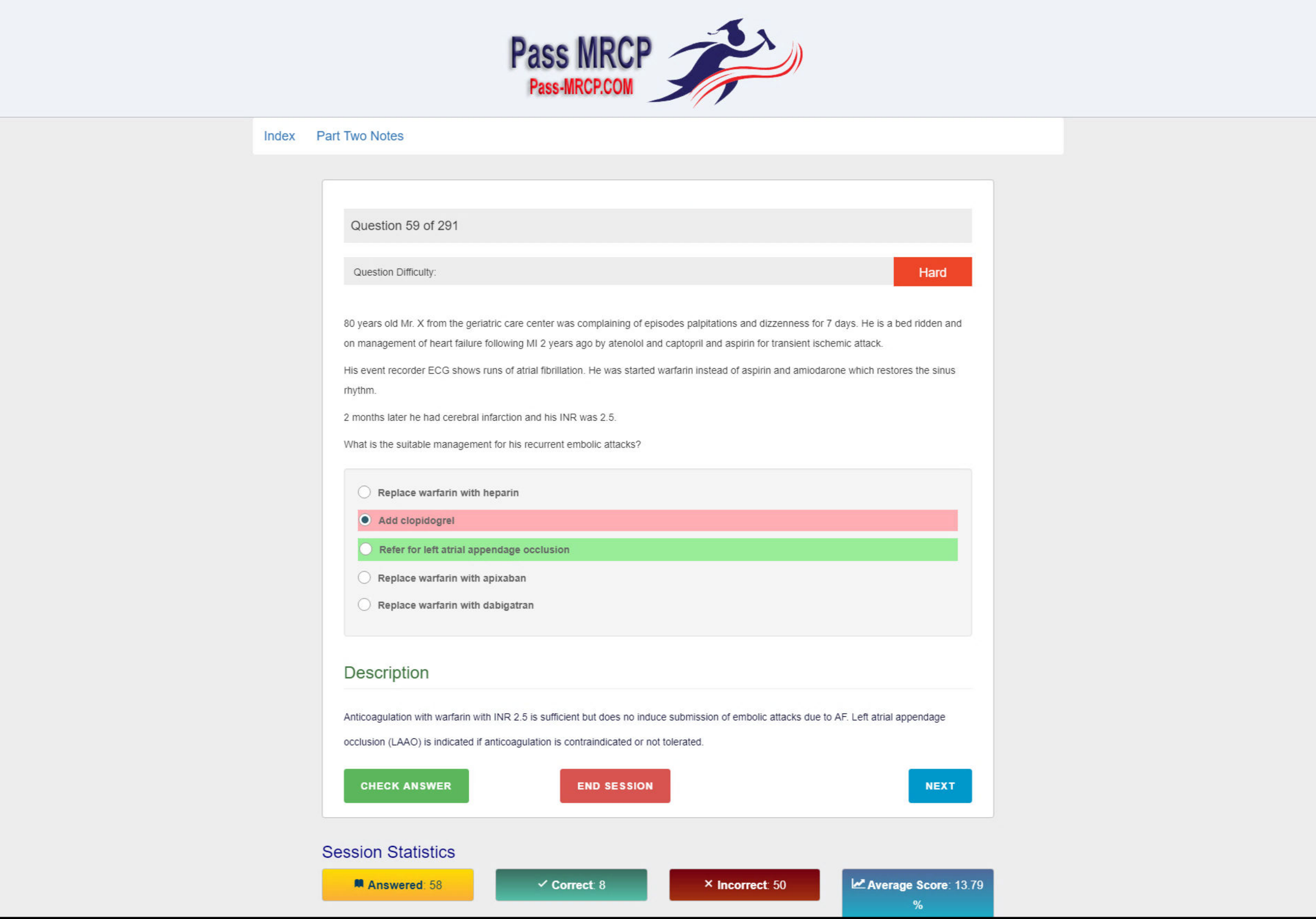
Session Statistics

Answered: 57

✓ **Correct**: 8

✕ **Incorrect**: 49

Average Score: 14.04 %



Question 59 of 291

Question Difficulty: Hard

80 years old Mr. X from the geriatric care center was complaining of episodes palpitations and dizzenness for 7 days. He is a bed ridden and on management of heart failure following MI 2 years ago by atenolol and captopril and aspirin for transient ischemic attack.

His event recorder ECG shows runs of atrial fibrillation. He was started warfarin instead of aspirin and amiodarone which restores the sinus rhythm.

2 months later he had cerebral infarction and his INR was 2.5.

What is the suitable management for his recurrent embolic attacks?

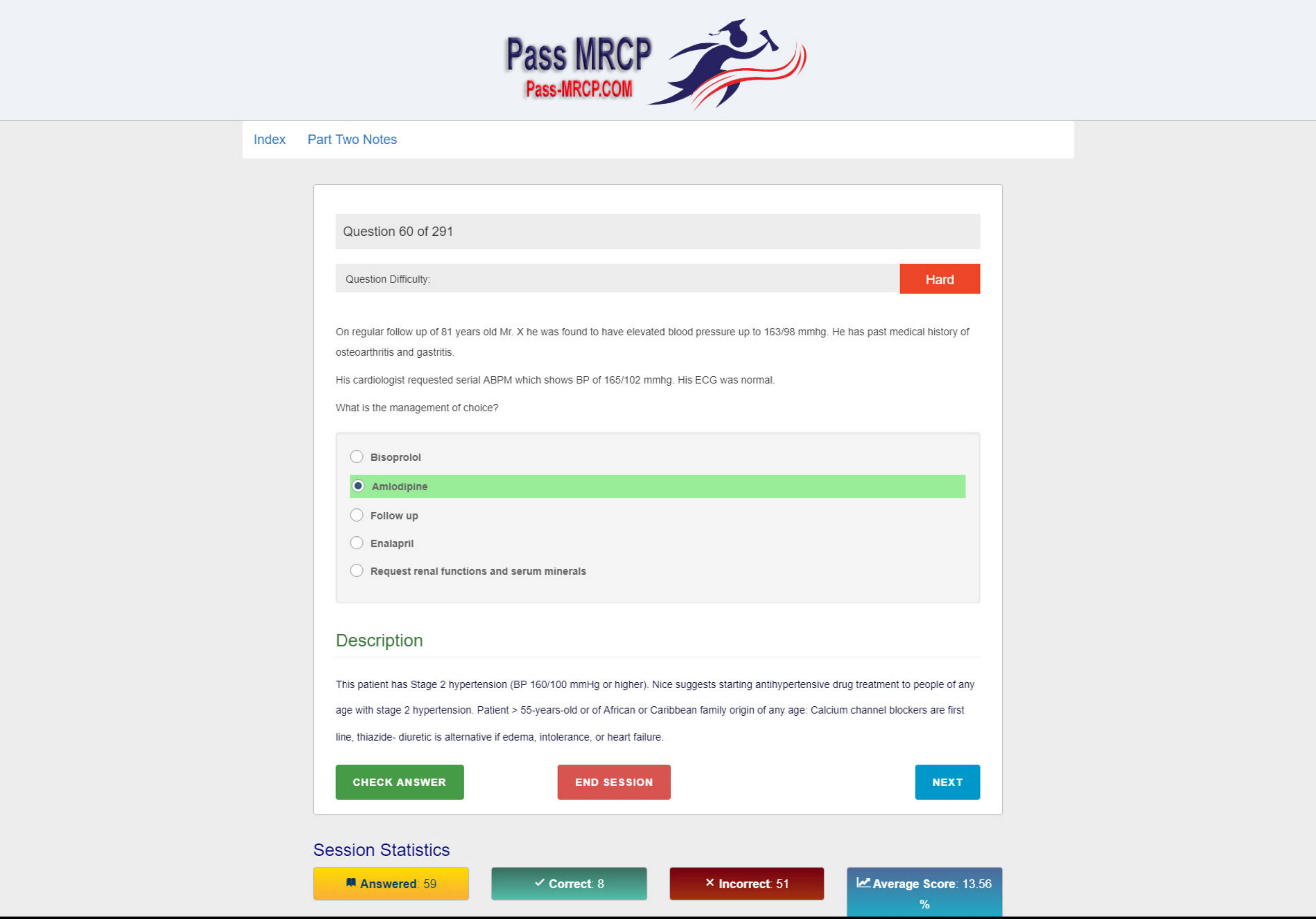
- ○ **Replace warfarin with heparin**
- ● **Add clopidogrel**
- ○ **Refer for left atrial appendage occlusion**
- ○ **Replace warfarin with apixaban**
- ○ **Replace warfarin with dabigatran**

Description

Anticoagulation with warfarin with INR 2.5 is sufficient but does no induce submission of embolic attacks due to AF. Left atrial appendage occlusion (LAAO) is indicated if anticoagulation is contraindicated or not tolerated.

Session Statistics

Answered: 58
✓ **Correct**: 8
✕ **Incorrect**: 50
Average Score: 13.79 %



Question 60 of 291

Question Difficulty: Hard

On regular follow up of 81 years old Mr. X he was found to have elevated blood pressure up to 163/98 mmhg. He has past medical history of osteoarthritis and gastritis.

His cardiologist requested serial ABPM which shows BP of 165/102 mmhg. His ECG was normal.

What is the management of choice?

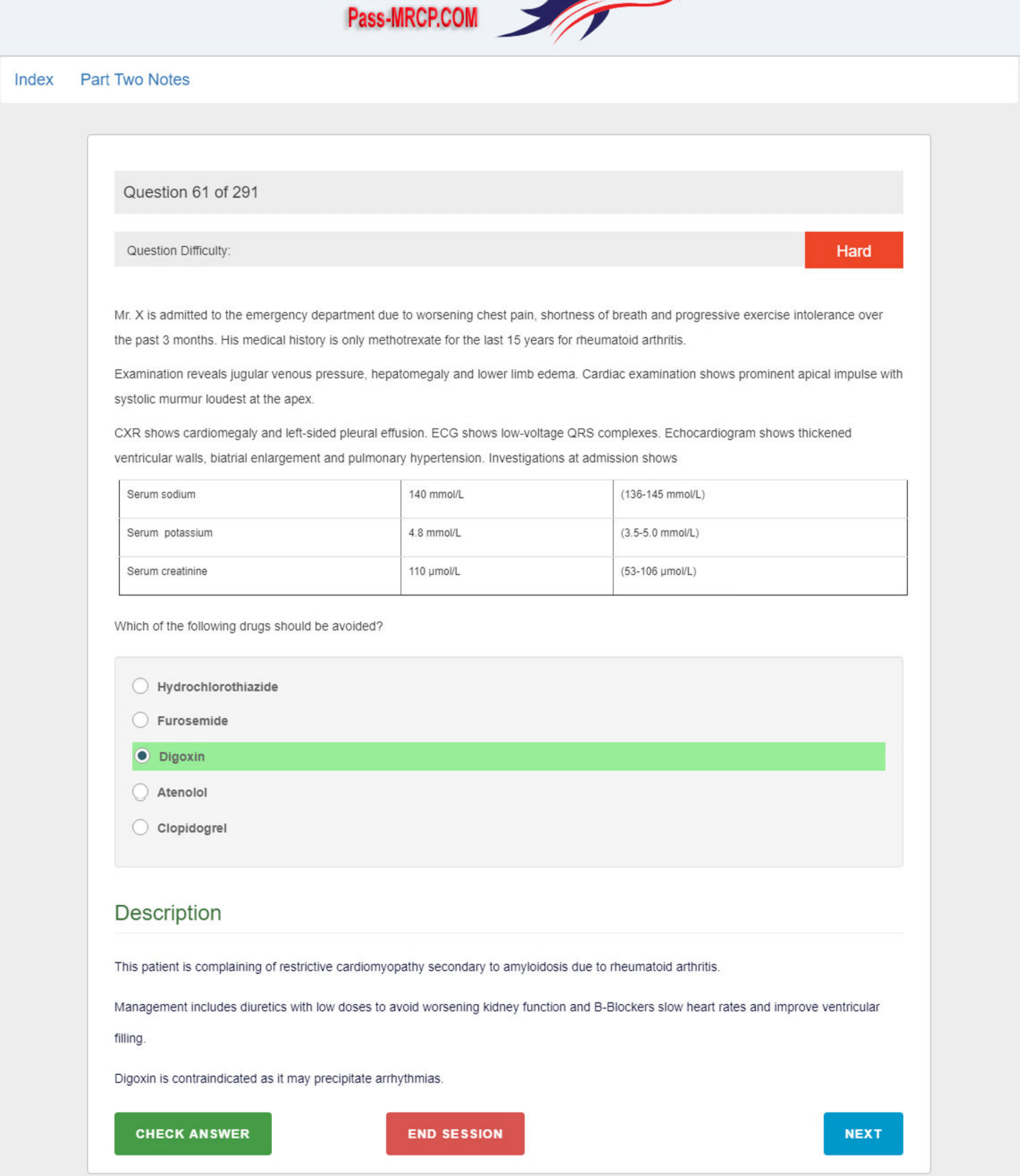
○ **Bisoprolol**
● **Amlodipine**
○ **Follow up**
○ **Enalapril**
○ **Request renal functions and serum minerals**

Description

This patient has Stage 2 hypertension (BP 160/100 mmHg or higher). Nice suggests starting antihypertensive drug treatment to people of any age with stage 2 hypertension. Patient > 55-years-old or of African or Caribbean family origin of any age: Calcium channel blockers are first line, thiazide- diuretic is alternative if edema, intolerance, or heart failure.

Session Statistics

Answered: 59
✓ **Correct**: 8
✕ **Incorrect**: 51
Average Score: 13.56 %



Question 61 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the emergency department due to worsening chest pain, shortness of breath and progressive exercise intolerance over the past 3 months. His medical history is only methotrexate for the last 15 years for rheumatoid arthritis.

Examination reveals jugular venous pressure, hepatomegaly and lower limb edema. Cardiac examination shows prominent apical impulse with systolic murmur loudest at the apex.

CXR shows cardiomegaly and left-sided pleural effusion. ECG shows low-voltage QRS complexes. Echocardiogram shows thickened ventricular walls, biatrial enlargement and pulmonary hypertension. Investigations at admission shows

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	110 µmol/L	(53-106 µmol/L)

Which of the following drugs should be avoided?

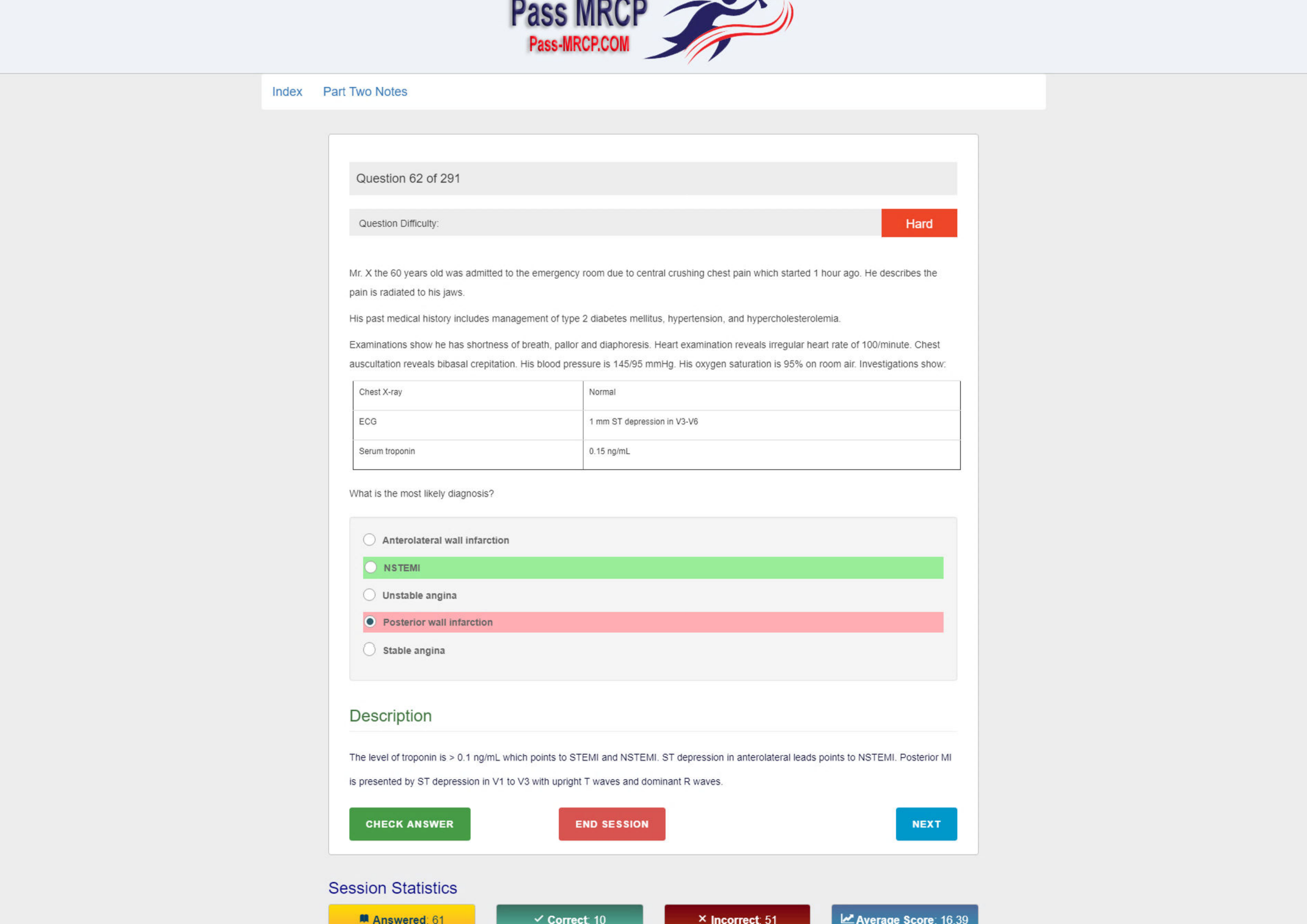
- ○ **Hydrochlorothiazide**
- ○ **Furosemide**
- ● **Digoxin**
- ○ **Atenolol**
- ○ **Clopidogrel**

Description

This patient is complaining of restrictive cardiomyopathy secondary to amyloidosis due to rheumatoid arthritis.

Management includes diuretics with low doses to avoid worsening kidney function and B-Blockers slow heart rates and improve ventricular filling.

Digoxin is contraindicated as it may precipitate arrhythmias.


Pass MRCP
Pass-MRCP.COM
Index
Part Two Notes

Question 62 of 291

Question Difficulty: **Hard**

Mr. X the 60 years old was admitted to the emergency room due to central crushing chest pain which started 1 hour ago. He describes the pain is radiated to his jaws.

His past medical history includes management of type 2 diabetes mellitus, hypertension, and hypercholesterolemia.

Examinations show he has shortness of breath, pallor and diaphoresis. Heart examination reveals irregular heart rate of 100/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 145/95 mmHg. His oxygen saturation is 95% on room air. Investigations show:

Chest X-ray	Normal
ECG	1 mm ST depression in V3-V6
Serum troponin	0.15 ng/mL

What is the most likely diagnosis?

○ **Anterolateral wall infarction**
○ **NSTEMI**
○ **Unstable angina**
● **Posterior wall infarction**
○ **Stable angina**

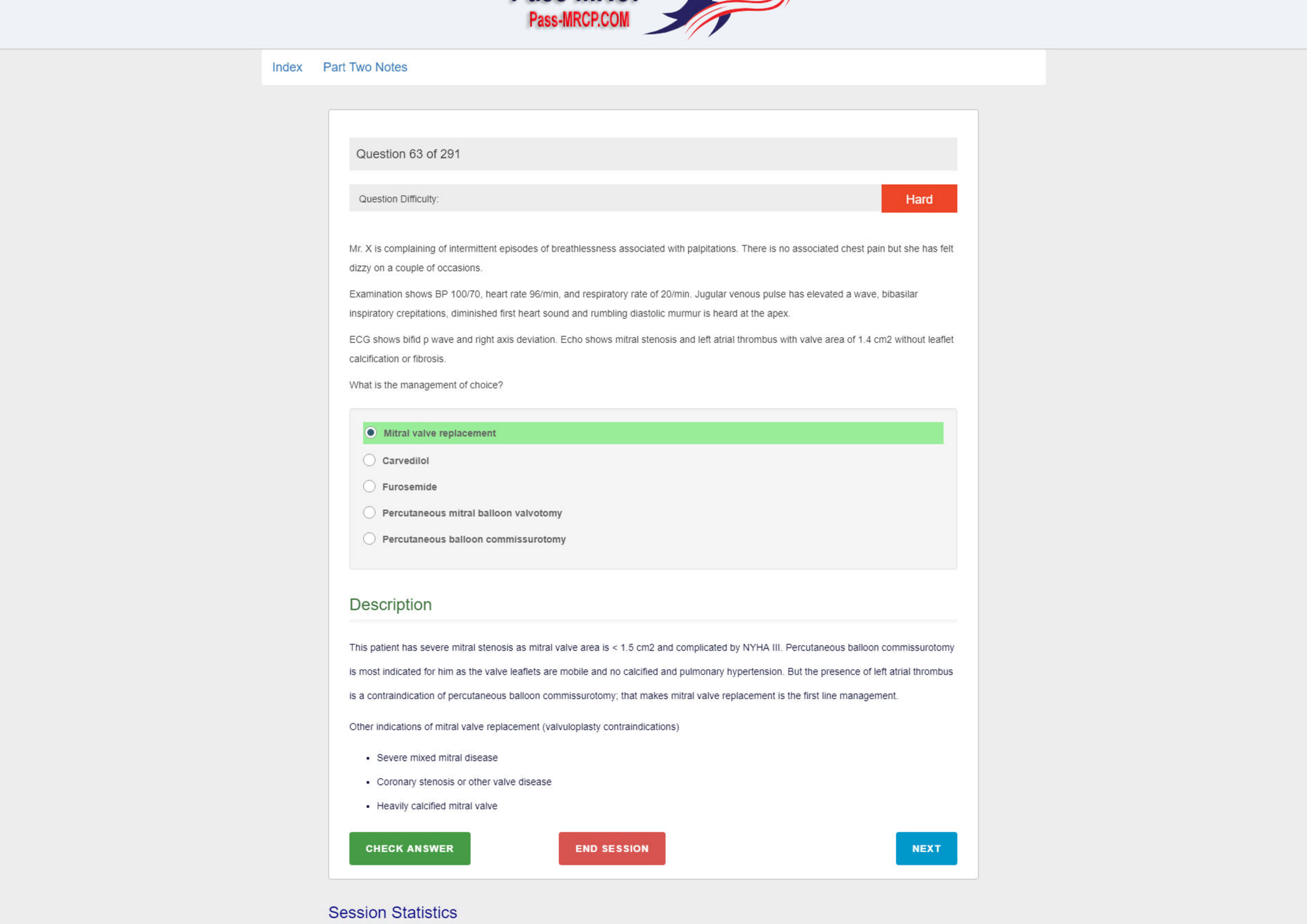
Description

The level of troponin is > 0.1 ng/mL which points to STEMI and NSTEMI. ST depression in anterolateral leads points to NSTEMI. Posterior MI is presented by ST depression in V1 to V3 with upright T waves and dominant R waves.

CHECK ANSWER
END SESSION
NEXT

Session Statistics

Answered: 61
✓ Correct: 10
✕ Incorrect: 51
Average Score: 16.39



Question 63 of 291

Question Difficulty: **Hard**

Mr. X is complaining of intermittent episodes of breathlessness associated with palpitations. There is no associated chest pain but she has felt dizzy on a couple of occasions.

Examination shows BP 100/70, heart rate 96/min, and respiratory rate of 20/min. Jugular venous pulse has elevated a wave, bibasilar inspiratory crepitations, diminished first heart sound and rumbling diastolic murmur is heard at the apex.

ECG shows bifid p wave and right axis deviation. Echo shows mitral stenosis and left atrial thrombus with valve area of 1.4 cm2 without leaflet calcification or fibrosis.

What is the management of choice?

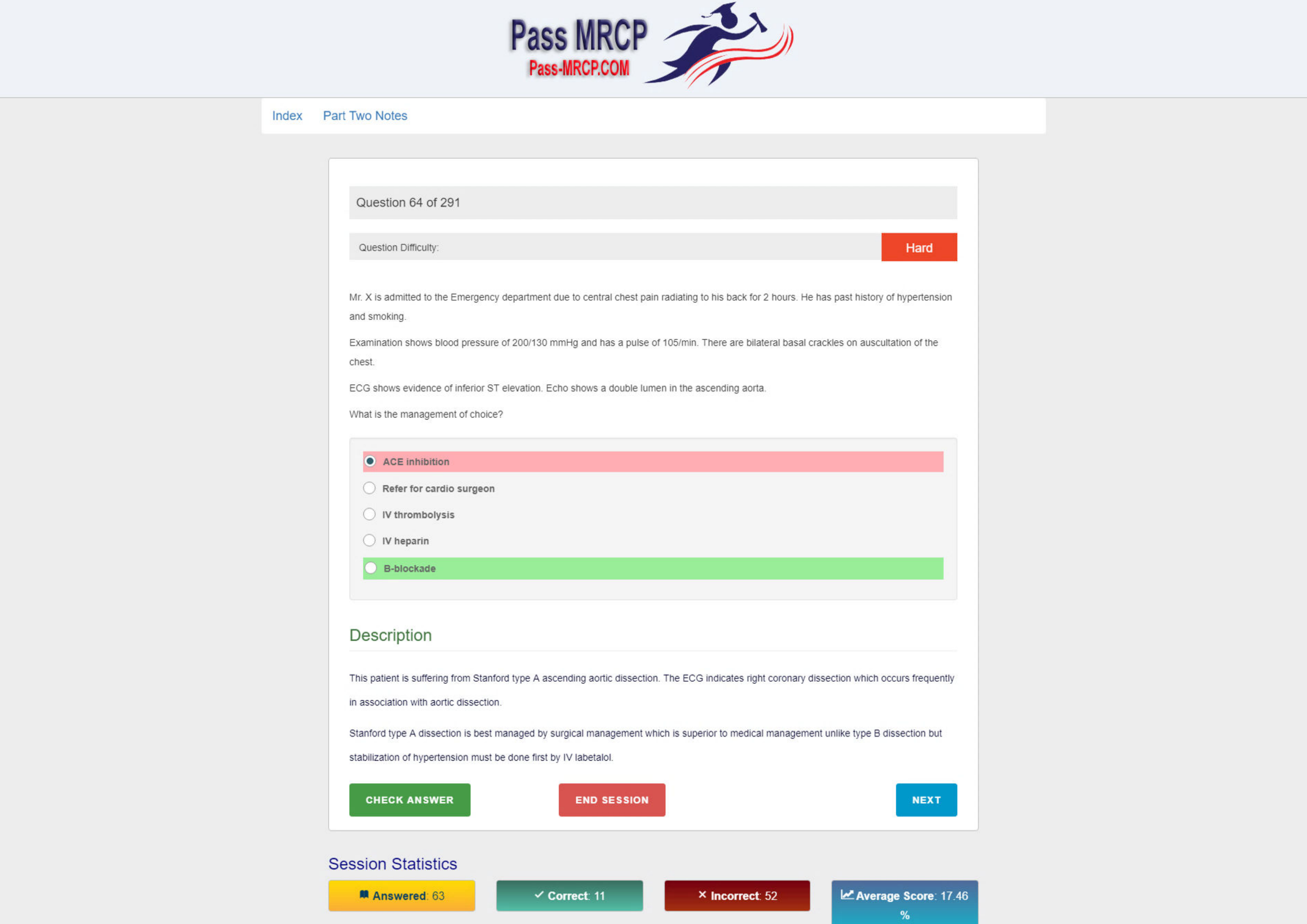
● **Mitral valve replacement**
○ **Carvedilol**
○ **Furosemide**
○ **Percutaneous mitral balloon valvotomy**
○ **Percutaneous balloon commissurotomy**

Description

This patient has severe mitral stenosis as mitral valve area is < 1.5 cm2 and complicated by NYHA III. Percutaneous balloon commissurotomy is most indicated for him as the valve leaflets are mobile and no calcified and pulmonary hypertension. But the presence of left atrial thrombus is a contraindication of percutaneous balloon commissurotomy; that makes mitral valve replacement is the first line management.

Other indications of mitral valve replacement (valvuloplasty contraindications)

- Severe mixed mitral disease
- Coronary stenosis or other valve disease
- Heavily calcified mitral valve



Question 64 of 291

Question Difficulty: Hard

Mr. X is admitted to the Emergency department due to central chest pain radiating to his back for 2 hours. He has past history of hypertension and smoking.

Examination shows blood pressure of 200/130 mmHg and has a pulse of 105/min. There are bilateral basal crackles on auscultation of the chest.

ECG shows evidence of inferior ST elevation. Echo shows a double lumen in the ascending aorta.

What is the management of choice?

- ● ACE inhibition
- ○ Refer for cardio surgeon
- ○ IV thrombolysis
- ○ IV heparin
- ○ B-blockade

Description

This patient is suffering from Stanford type A ascending aortic dissection. The ECG indicates right coronary dissection which occurs frequently in association with aortic dissection.

Stanford type A dissection is best managed by surgical management which is superior to medical management unlike type B dissection but stabilization of hypertension must be done first by IV labetalol.

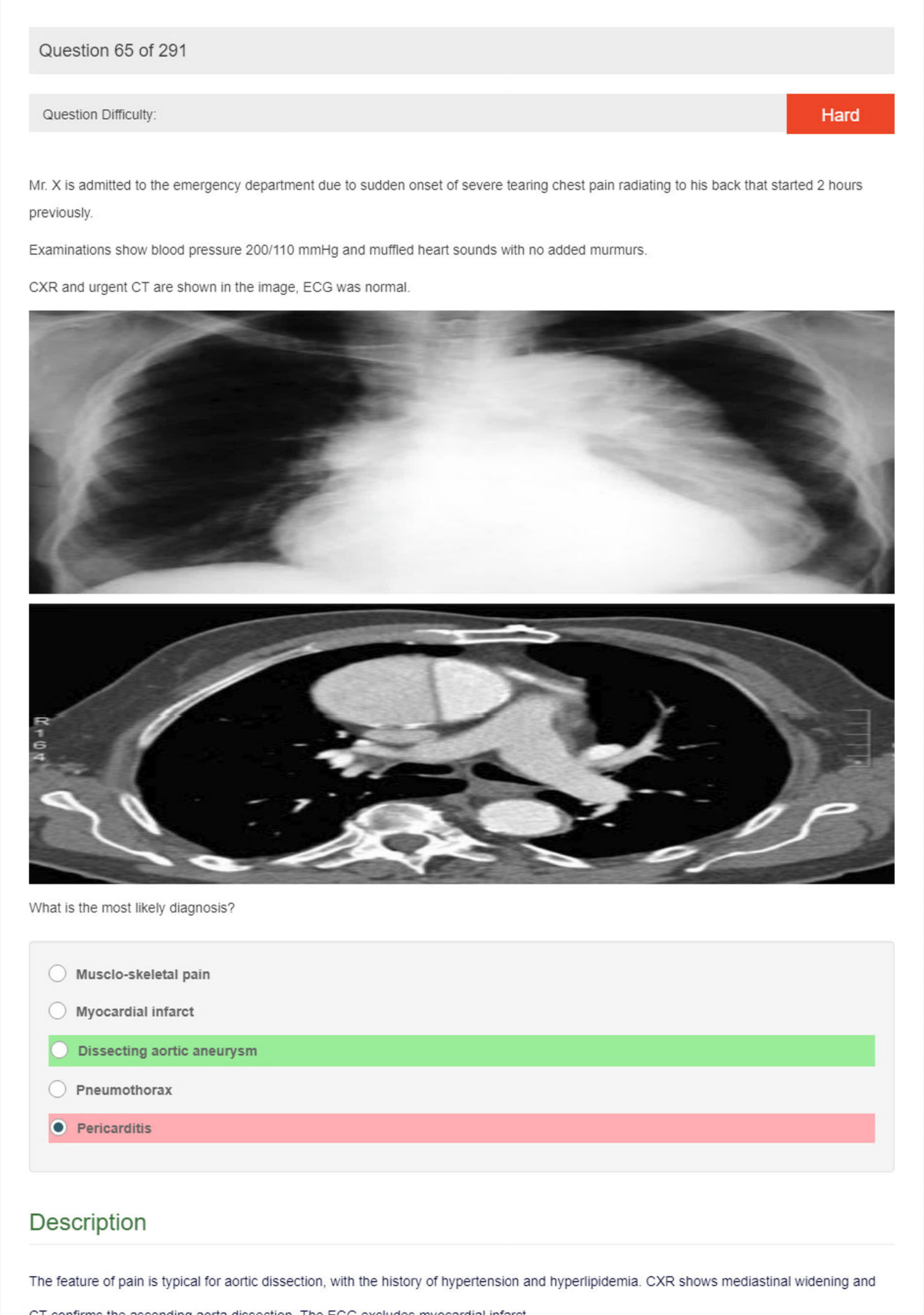
Session Statistics

Answered: 63

Correct: 11

Incorrect: 52

Average Score: 17.46 %



Question 65 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the emergency department due to sudden onset of severe tearing chest pain radiating to his back that started 2 hours previously.

Examinations show blood pressure 200/110 mmHg and muffled heart sounds with no added murmurs.

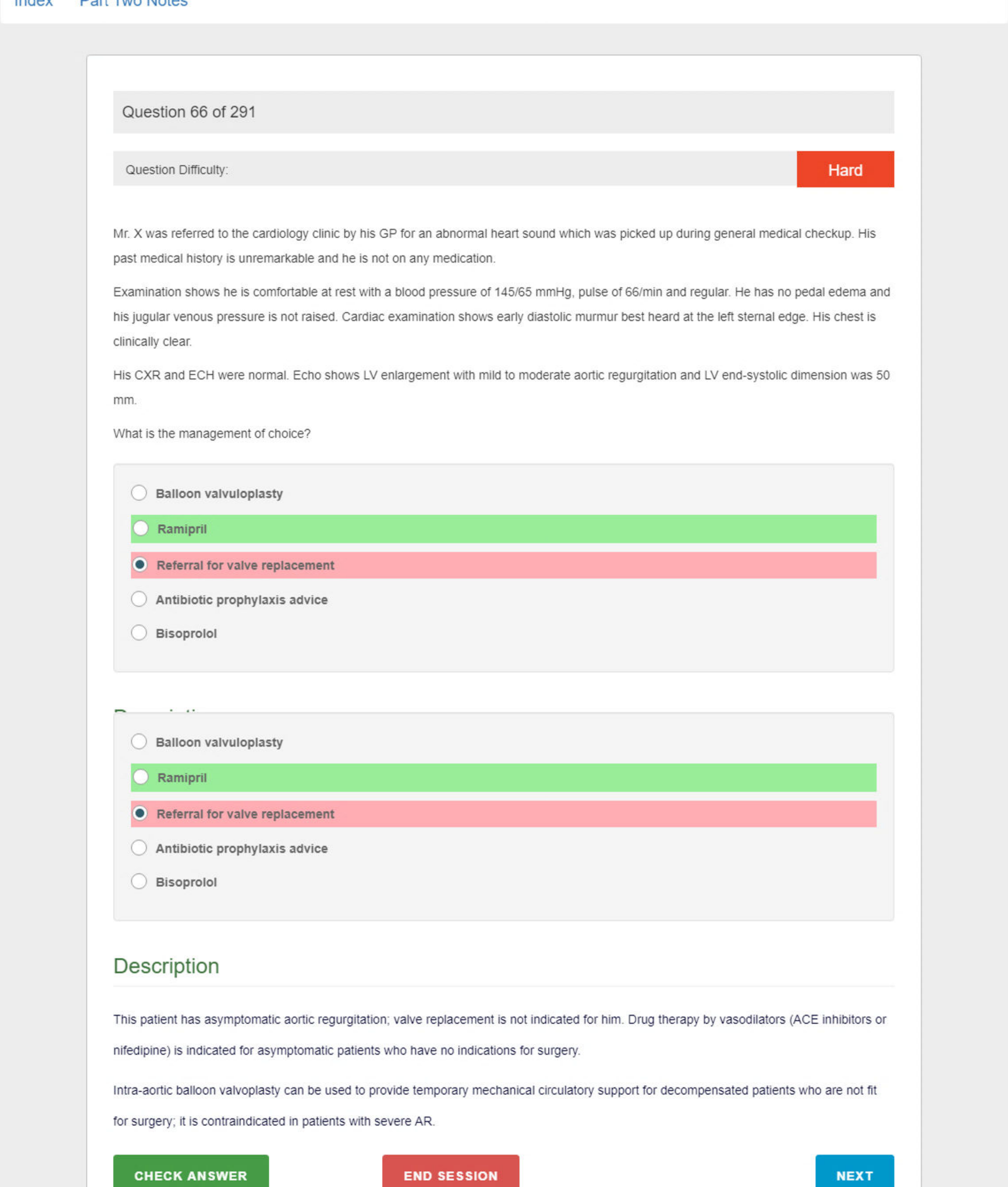
CXR and urgent CT are shown in the image, ECG was normal.

What is the most likely diagnosis?

- ○ **Musclo-skeletal pain**
- ○ **Myocardial infarct**
- ○ **Dissecting aortic aneurysm**
- ○ **Pneumothorax**
- ● **Pericarditis**

Description

The feature of pain is typical for aortic dissection, with the history of hypertension and hyperlipidemia. CXR shows mediastinal widening and CT confirms the ascending aorta dissection. The ECG excludes myocardial infarct.



Question 66 of 291

Question Difficulty: **Hard**

Mr. X was referred to the cardiology clinic by his GP for an abnormal heart sound which was picked up during general medical checkup. His past medical history is unremarkable and he is not on any medication.

Examination shows he is comfortable at rest with a blood pressure of 145/65 mmHg, pulse of 66/min and regular. He has no pedal edema and his jugular venous pressure is not raised. Cardiac examination shows early diastolic murmur best heard at the left sternal edge. His chest is clinically clear.

His CXR and ECH were normal. Echo shows LV enlargement with mild to moderate aortic regurgitation and LV end-systolic dimension was 50 mm.

What is the management of choice?

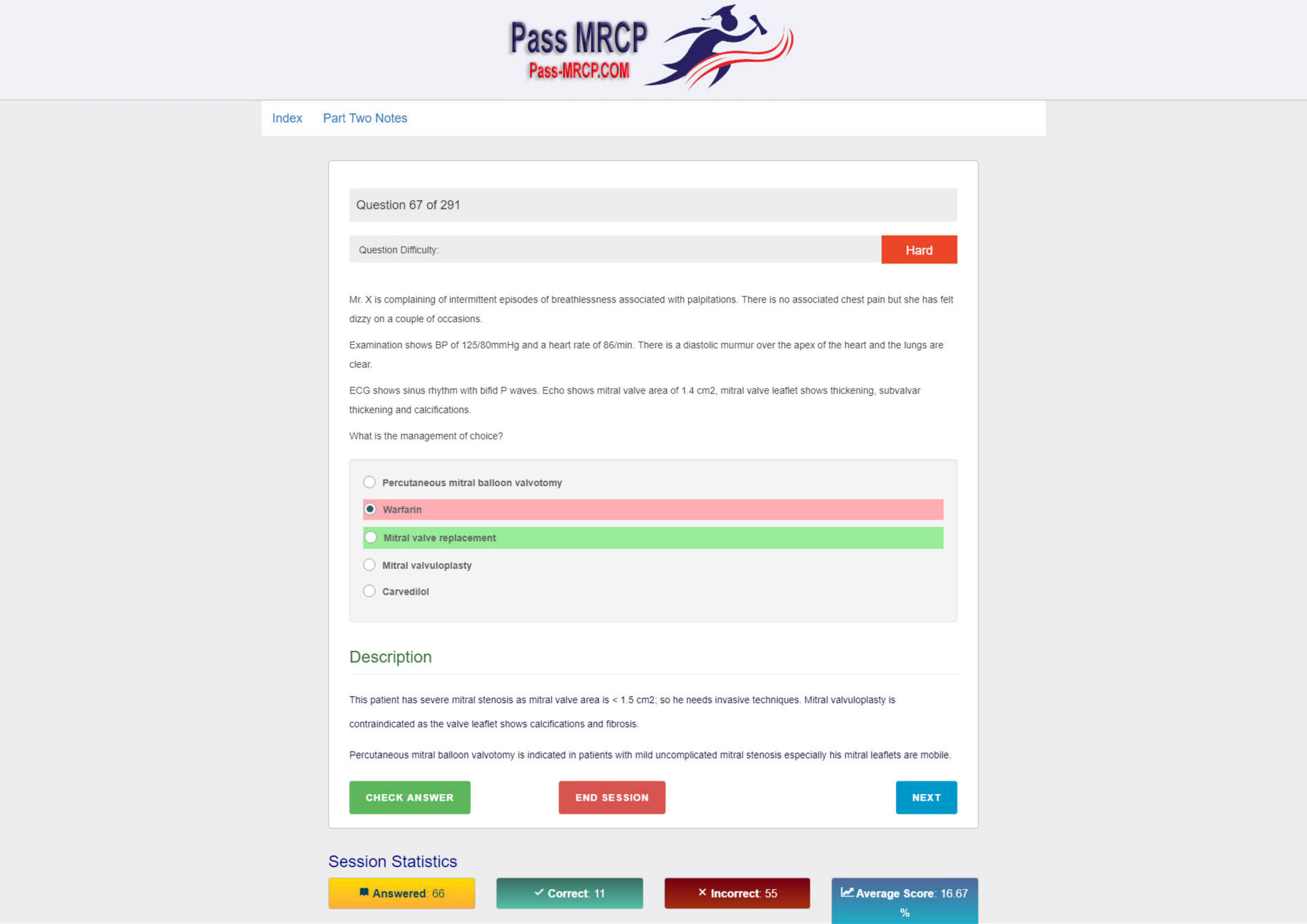
○ **Balloon valvuloplasty**
○ **Ramipril**
● **Referral for valve replacement**
○ **Antibiotic prophylaxis advice**
○ **Bisoprolol**

○ **Balloon valvuloplasty**
○ **Ramipril**
● **Referral for valve replacement**
○ **Antibiotic prophylaxis advice**
○ **Bisoprolol**

Description

This patient has asymptomatic aortic regurgitation; valve replacement is not indicated for him. Drug therapy by vasodilators (ACE inhibitors or nifedipine) is indicated for asymptomatic patients who have no indications for surgery.

Intra-aortic balloon valvoplasty can be used to provide temporary mechanical circulatory support for decompensated patients who are not fit for surgery; it is contraindicated in patients with severe AR.



Question 67 of 291

Question Difficulty: Hard

Mr. X is complaining of intermittent episodes of breathlessness associated with palpitations. There is no associated chest pain but she has felt dizzy on a couple of occasions.

Examination shows BP of 125/80mmHg and a heart rate of 86/min. There is a diastolic murmur over the apex of the heart and the lungs are clear.

ECG shows sinus rhythm with bifid P waves. Echo shows mitral valve area of 1.4 cm2, mitral valve leaflet shows thickening, subvalvar thickening and calcifications.

What is the management of choice?

- ○ **Percutaneous mitral balloon valvotomy**
- ● **Warfarin**
- ○ **Mitral valve replacement**
- ○ **Mitral valvuloplasty**
- ○ **Carvedilol**

Description

This patient has severe mitral stenosis as mitral valve area is < 1.5 cm2; so he needs invasive techniques. Mitral valvuloplasty is contraindicated as the valve leaflet shows calcifications and fibrosis.

Percutaneous mitral balloon valvotomy is indicated in patients with mild uncomplicated mitral stenosis especially his mitral leaflets are mobile.

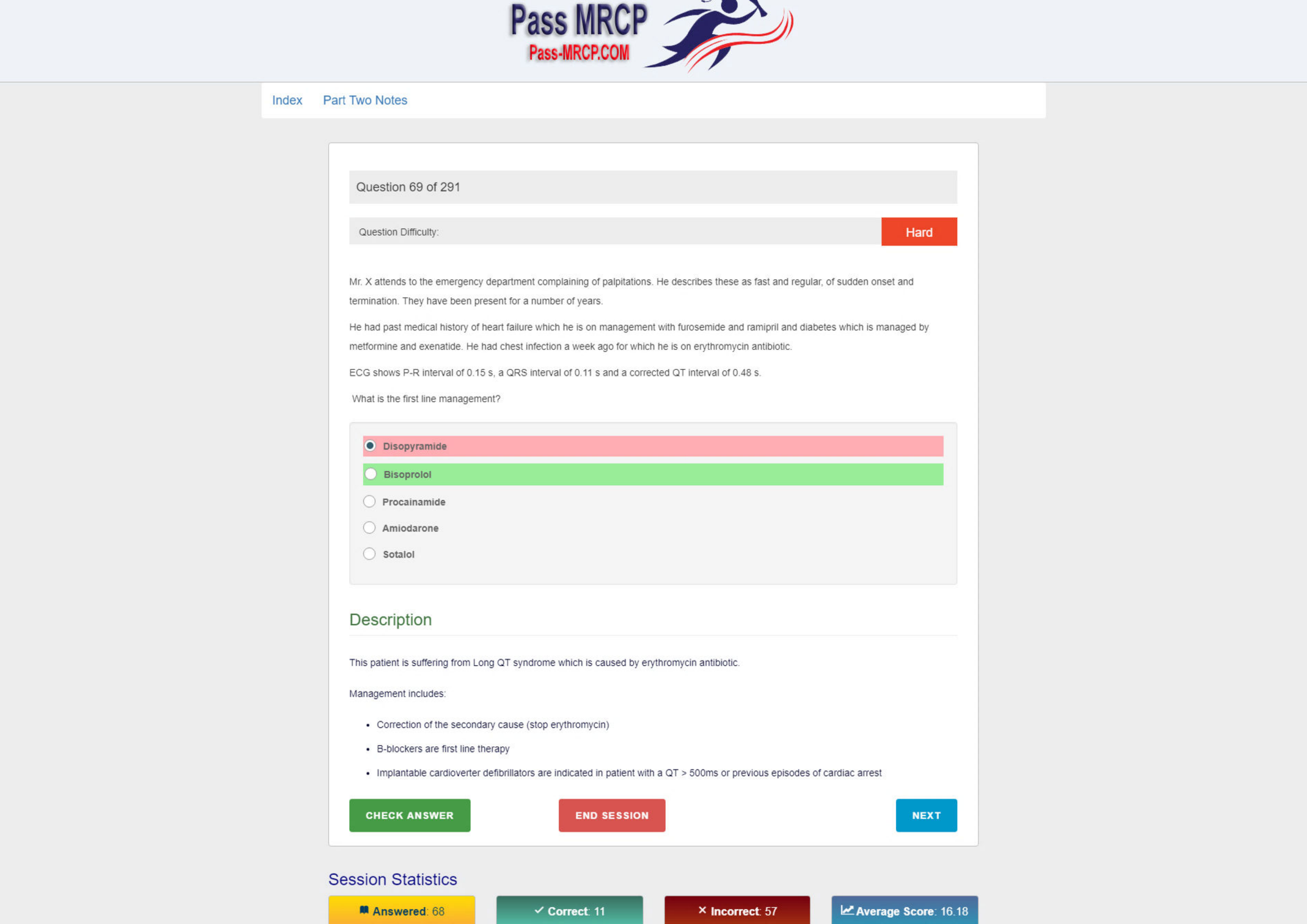
Session Statistics

Answered: 66

✓ **Correct**: 11

× **Incorrect**: 55

Average Score: 16.67 %



Question 69 of 291

Question Difficulty: Hard

Mr. X attends to the emergency department complaining of palpitations. He describes these as fast and regular, of sudden onset and termination. They have been present for a number of years.

He had past medical history of heart failure which he is on management with furosemide and ramipril and diabetes which is managed by metformine and exenatide. He had chest infection a week ago for which he is on erythromycin antibiotic.

ECG shows P-R interval of 0.15 s, a QRS interval of 0.11 s and a corrected QT interval of 0.48 s.

What is the first line management?

● Disopyramide
○ Bisoprolol
○ Procainamide
○ Amiodarone
○ Sotalol

Description

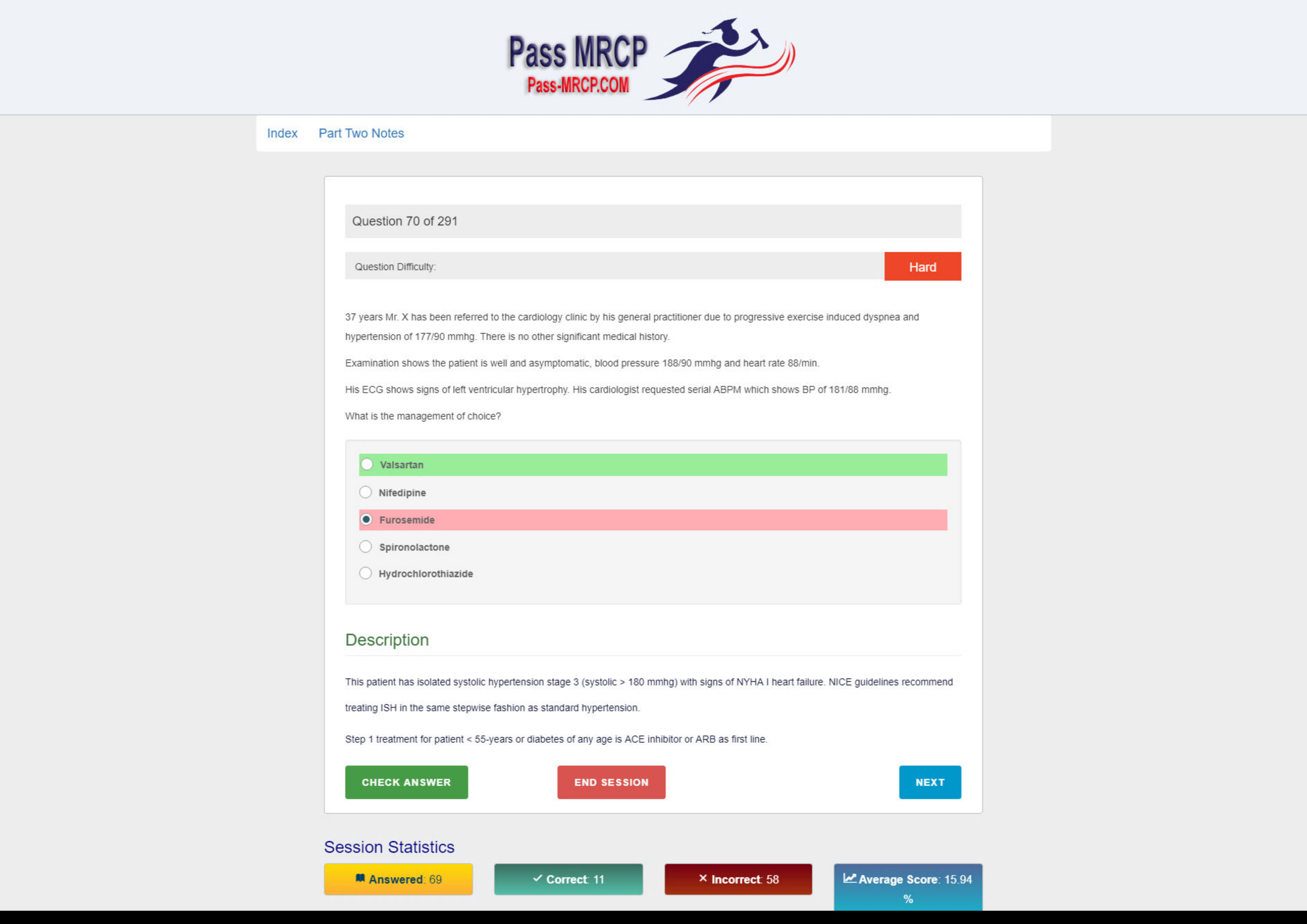
This patient is suffering from Long QT syndrome which is caused by erythromycin antibiotic.

Management includes:

- Correction of the secondary cause (stop erythromycin)
- B-blockers are first line therapy
- Implantable cardioverter defibrillators are indicated in patient with a QT > 500ms or previous episodes of cardiac arrest

Session Statistics

Answered: 68
✓ Correct: 11
✕ Incorrect: 57
Average Score: 16.18



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Index   Part Two Notes

Question 70 of 291

Question Difficulty: **Hard**

37 years Mr. X has been referred to the cardiology clinic by his general practitioner due to progressive exercise induced dyspnea and hypertension of 177/90 mmhg. There is no other significant medical history.

Examination shows the patient is well and asymptomatic, blood pressure 188/90 mmhg and heart rate 88/min.

His ECG shows signs of left ventricular hypertrophy. His cardiologist requested serial ABPM which shows BP of 181/88 mmhg.

What is the management of choice?

- ○ **Valsartan**
- ○ **Nifedipine**
- ● **Furosemide**
- ○ **Spironolactone**
- ○ **Hydrochlorothiazide**

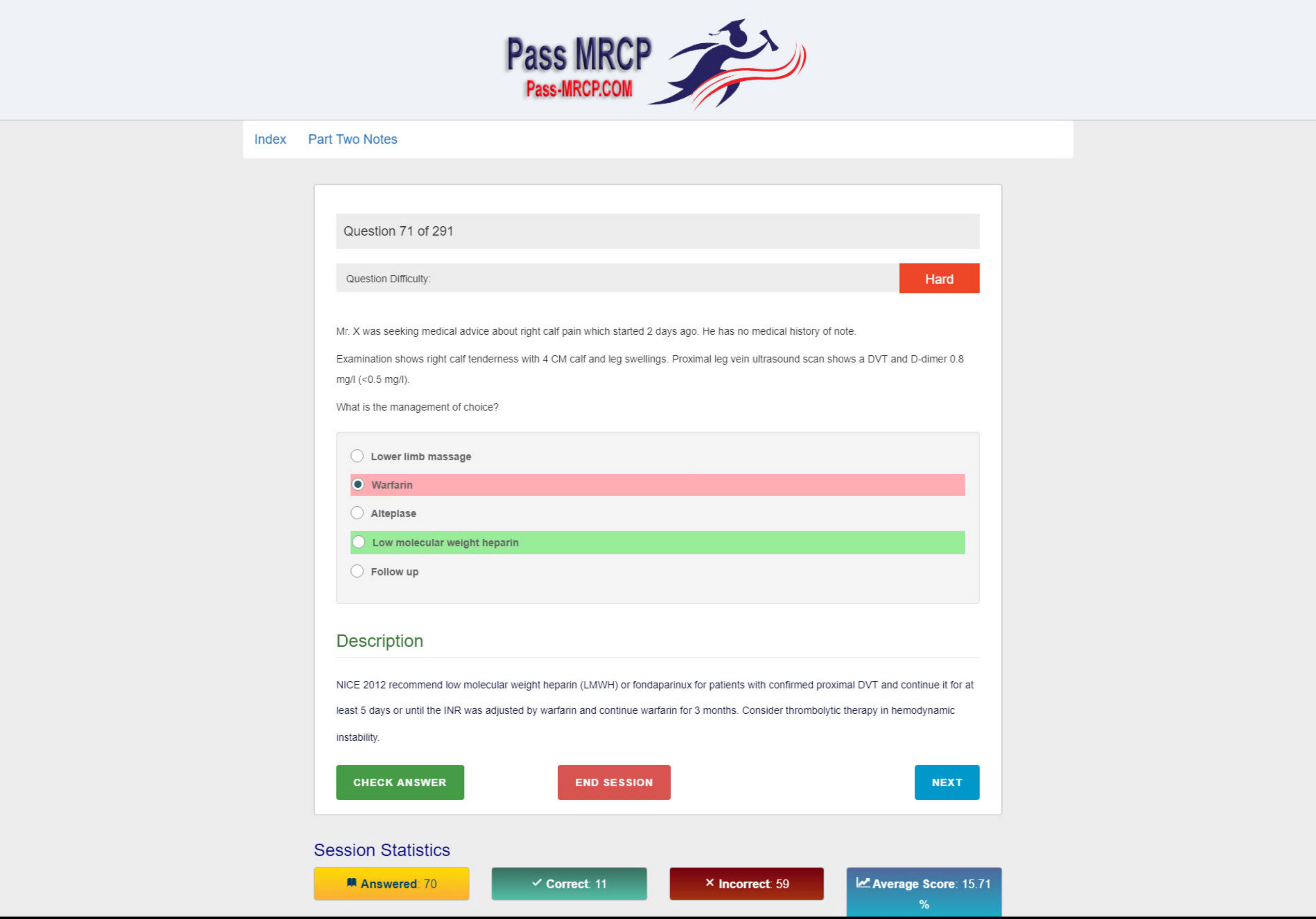
Description

This patient has isolated systolic hypertension stage 3 (systolic > 180 mmhg) with signs of NYHA I heart failure. NICE guidelines recommend treating ISH in the same stepwise fashion as standard hypertension.

Step 1 treatment for patient < 55-years or diabetes of any age is ACE inhibitor or ARB as first line.

Session Statistics

Answered: 69
✓ **Correct**: 11
✕ **Incorrect**: 58
Average Score: 15.94 %



Question 71 of 291

Question Difficulty: Hard

Mr. X was seeking medical advice about right calf pain which started 2 days ago. He has no medical history of note.

Examination shows right calf tenderness with 4 CM calf and leg swellings. Proximal leg vein ultrasound scan shows a DVT and D-dimer 0.8 mg/l (<0.5 mg/l).

What is the management of choice?

- ○ Lower limb massage
- ● Warfarin
- ○ Alteplase
- ○ Low molecular weight heparin
- ○ Follow up

Description

NICE 2012 recommend low molecular weight heparin (LMWH) or fondaparinux for patients with confirmed proximal DVT and continue it for at least 5 days or until the INR was adjusted by warfarin and continue warfarin for 3 months. Consider thrombolytic therapy in hemodynamic instability.

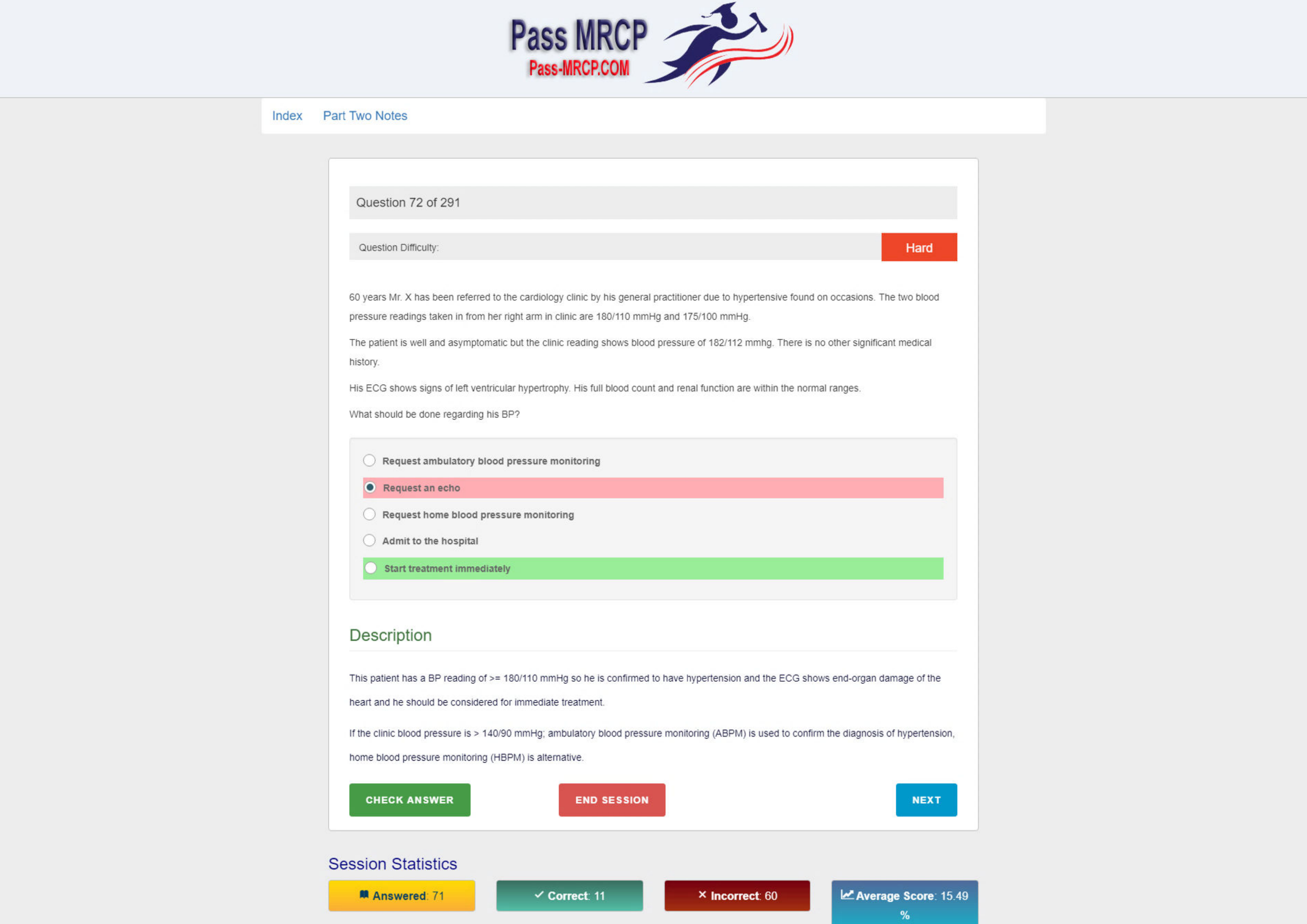
Session Statistics

Answered: 70

✓ Correct: 11

✕ Incorrect: 59

Average Score: 15.71 %



Question 72 of 291

Question Difficulty: **Hard**

60 years Mr. X has been referred to the cardiology clinic by his general practitioner due to hypertensive found on occasions. The two blood pressure readings taken in from her right arm in clinic are 180/110 mmHg and 175/100 mmHg.

The patient is well and asymptomatic but the clinic reading shows blood pressure of 182/112 mmhg. There is no other significant medical history.

His ECG shows signs of left ventricular hypertrophy. His full blood count and renal function are within the normal ranges.

What should be done regarding his BP?

- ○ **Request ambulatory blood pressure monitoring**
- ● **Request an echo**
- ○ **Request home blood pressure monitoring**
- ○ **Admit to the hospital**
- ○ **Start treatment immediately**

Description

This patient has a BP reading of >= 180/110 mmHg so he is confirmed to have hypertension and the ECG shows end-organ damage of the heart and he should be considered for immediate treatment.

If the clinic blood pressure is > 140/90 mmHg; ambulatory blood pressure monitoring (ABPM) is used to confirm the diagnosis of hypertension, home blood pressure monitoring (HBPM) is alternative.

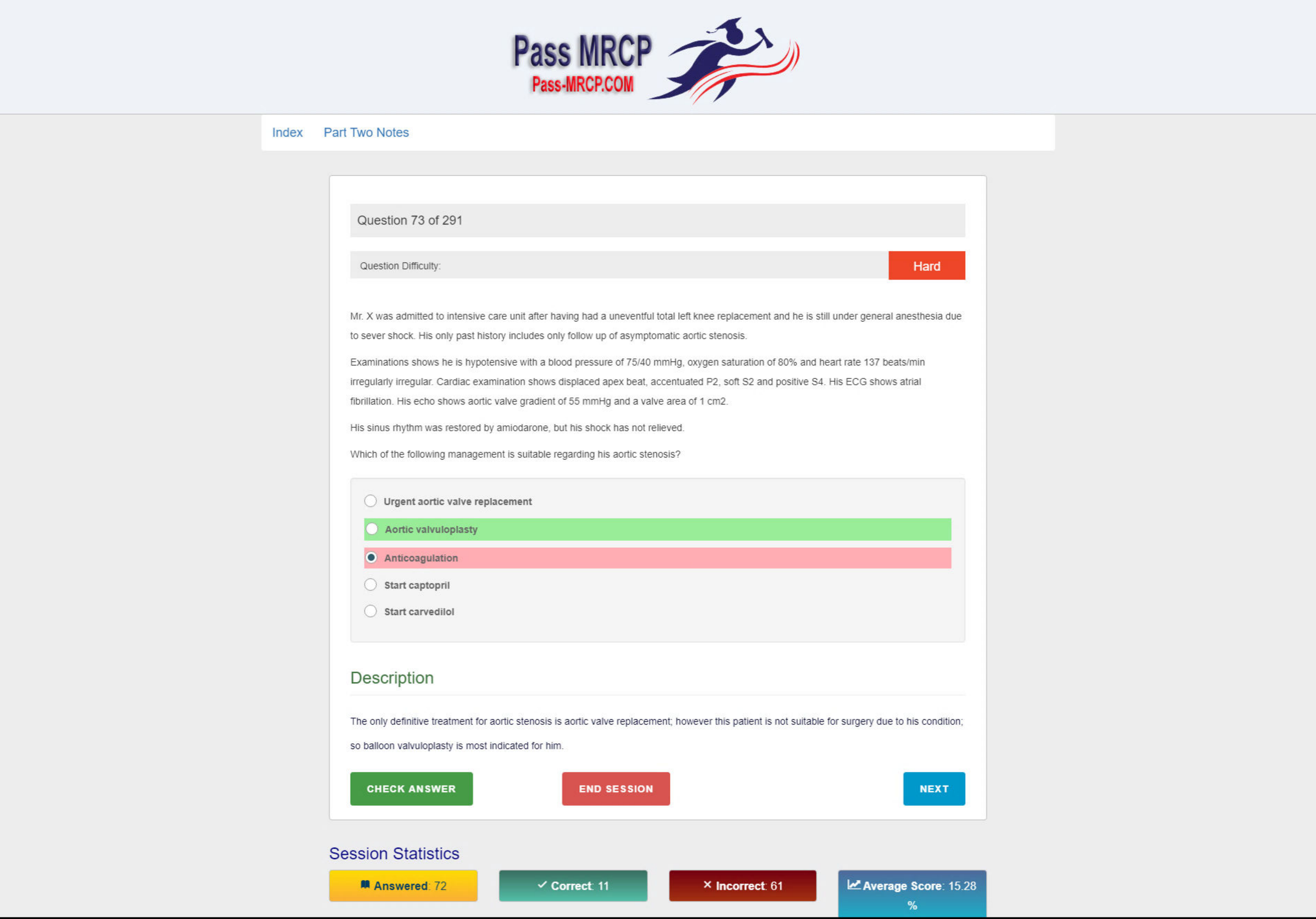
Session Statistics

Answered: 71

✓ **Correct**: 11

× **Incorrect**: 60

Average Score: 15.49 %



Question 73 of 291

Question Difficulty: Hard

Mr. X was admitted to intensive care unit after having had a uneventful total left knee replacement and he is still under general anesthesia due to sever shock. His only past history includes only follow up of asymptomatic aortic stenosis.

Examinations shows he is hypotensive with a blood pressure of 75/40 mmHg, oxygen saturation of 80% and heart rate 137 beats/min irregularly irregular. Cardiac examination shows displaced apex beat, accentuated P2, soft S2 and positive S4. His ECG shows atrial fibrillation. His echo shows aortic valve gradient of 55 mmHg and a valve area of 1 cm2.

His sinus rhythm was restored by amiodarone, but his shock has not relieved.

Which of the following management is suitable regarding his aortic stenosis?

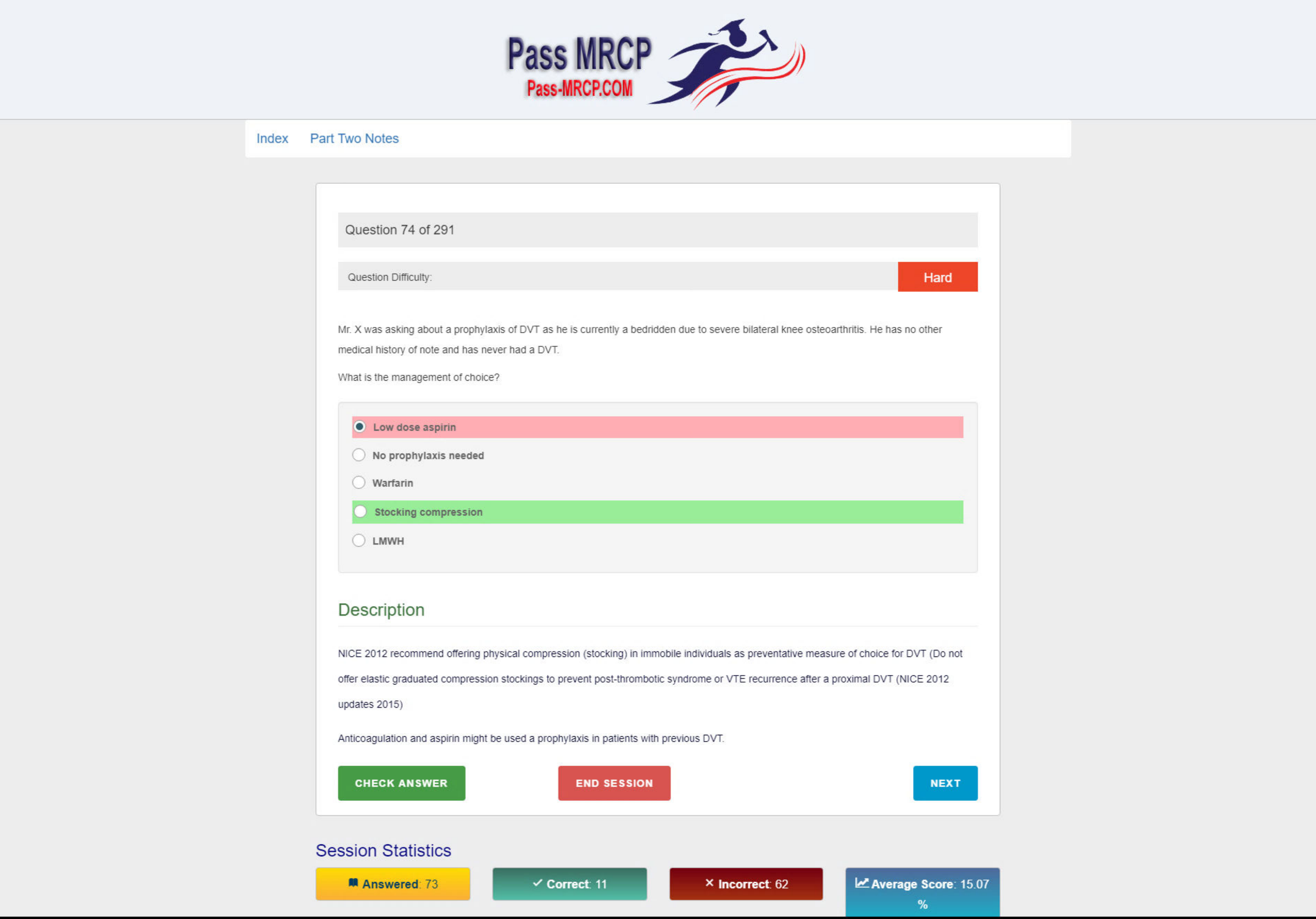
○ **Urgent aortic valve replacement**
○ **Aortic valvuloplasty**
● **Anticoagulation**
○ **Start captopril**
○ **Start carvedilol**

Description

The only definitive treatment for aortic stenosis is aortic valve replacement; however this patient is not suitable for surgery due to his condition; so balloon valvuloplasty is most indicated for him.

Session Statistics

Answered: 72
✓ **Correct**: 11
✕ **Incorrect**: 61
Average Score: 15.28 %



Question 74 of 291

Question Difficulty: Hard

Mr. X was asking about a prophylaxis of DVT as he is currently a bedridden due to severe bilateral knee osteoarthritis. He has no other medical history of note and has never had a DVT.

What is the management of choice?

- ● Low dose aspirin
- ○ No prophylaxis needed
- ○ Warfarin
- ○ Stocking compression
- ○ LMWH

Description

NICE 2012 recommend offering physical compression (stocking) in immobile individuals as preventative measure of choice for DVT (Do not offer elastic graduated compression stockings to prevent post-thrombotic syndrome or VTE recurrence after a proximal DVT (NICE 2012 updates 2015)

Anticoagulation and aspirin might be used a prophylaxis in patients with previous DVT.

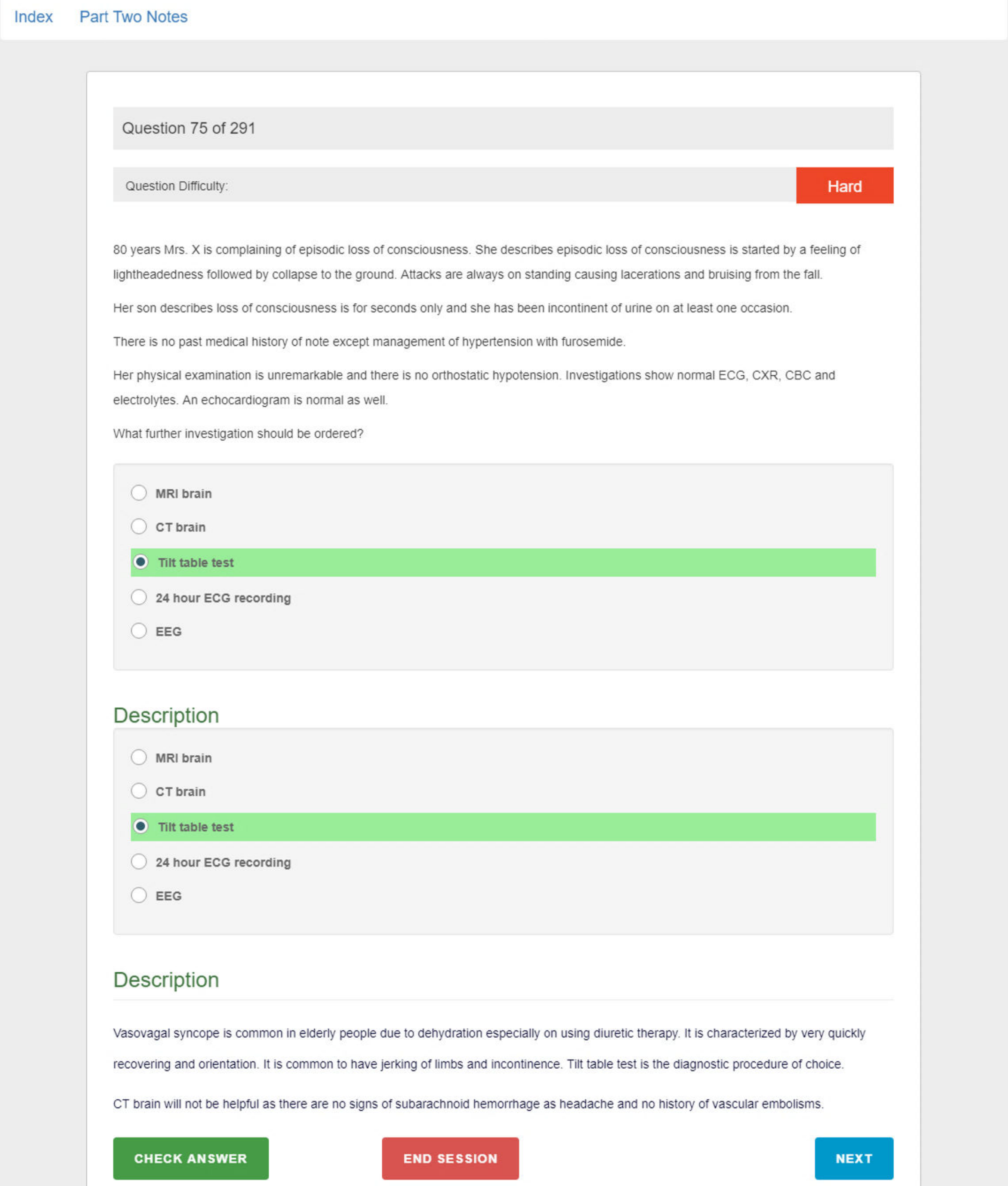
Session Statistics

Answered: 73

✓ Correct: 11

✕ Incorrect: 62

Average Score: 15.07 %



Question 75 of 291

Question Difficulty: Hard

80 years Mrs. X is complaining of episodic loss of consciousness. She describes episodic loss of consciousness is started by a feeling of lightheadedness followed by collapse to the ground. Attacks are always on standing causing lacerations and bruising from the fall.

Her son describes loss of consciousness is for seconds only and she has been incontinent of urine on at least one occasion.

There is no past medical history of note except management of hypertension with furosemide.

Her physical examination is unremarkable and there is no orthostatic hypotension. Investigations show normal ECG, CXR, CBC and electrolytes. An echocardiogram is normal as well.

What further investigation should be ordered?

- ○ **MRI brain**
- ○ **CT brain**
- ● **Tilt table test**
- ○ **24 hour ECG recording**
- ○ **EEG**

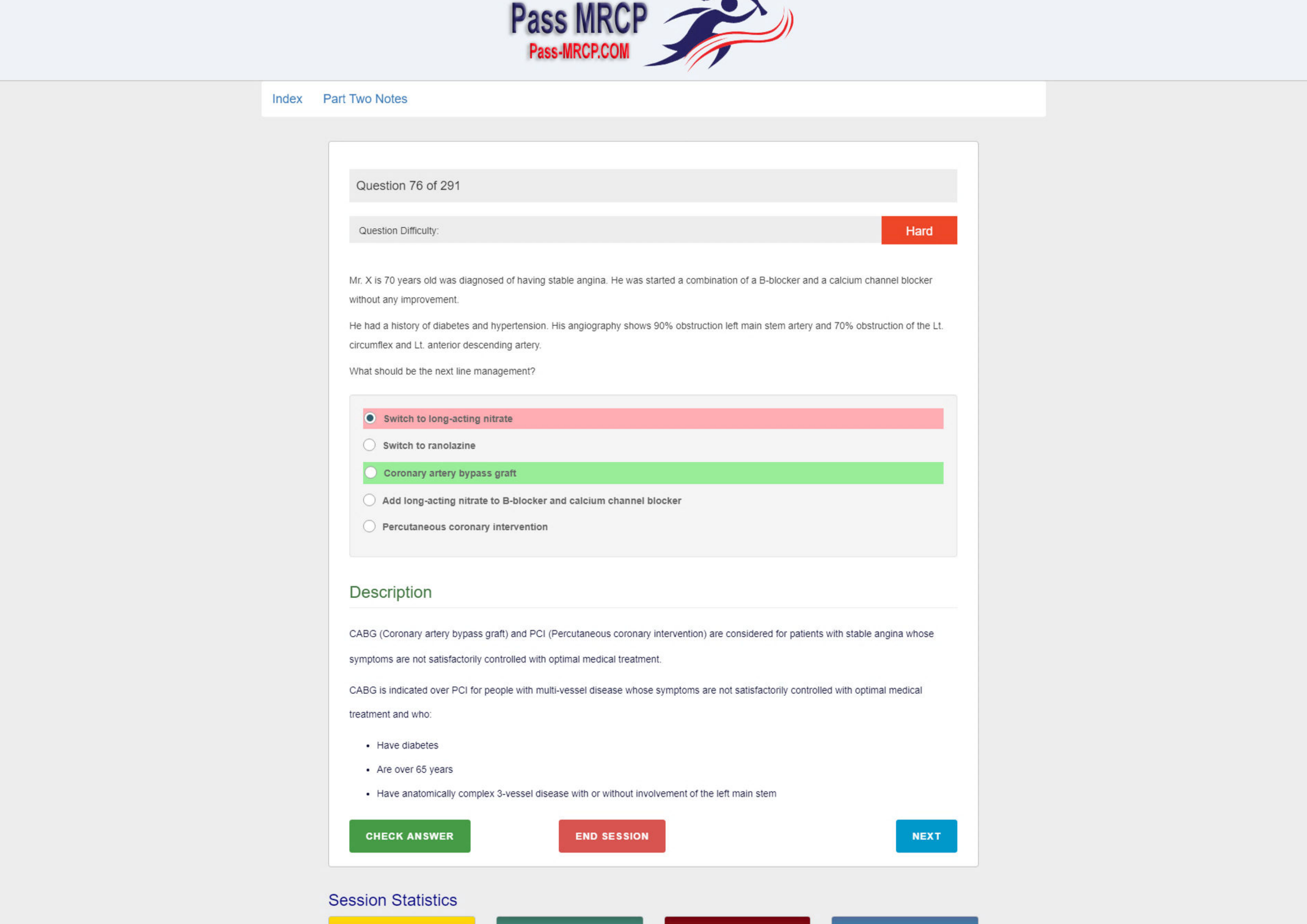
Description

- ○ **MRI brain**
- ○ **CT brain**
- ● **Tilt table test**
- ○ **24 hour ECG recording**
- ○ **EEG**

Description

Vasovagal syncope is common in elderly people due to dehydration especially on using diuretic therapy. It is characterized by very quickly recovering and orientation. It is common to have jerking of limbs and incontinence. Tilt table test is the diagnostic procedure of choice.

CT brain will not be helpful as there are no signs of subarachnoid hemorrhage as headache and no history of vascular embolisms.



Question 76 of 291

Question Difficulty: Hard

Mr. X is 70 years old was diagnosed of having stable angina. He was started a combination of a B-blocker and a calcium channel blocker without any improvement.

He had a history of diabetes and hypertension. His angiography shows 90% obstruction left main stem artery and 70% obstruction of the Lt. circumflex and Lt. anterior descending artery.

What should be the next line management?

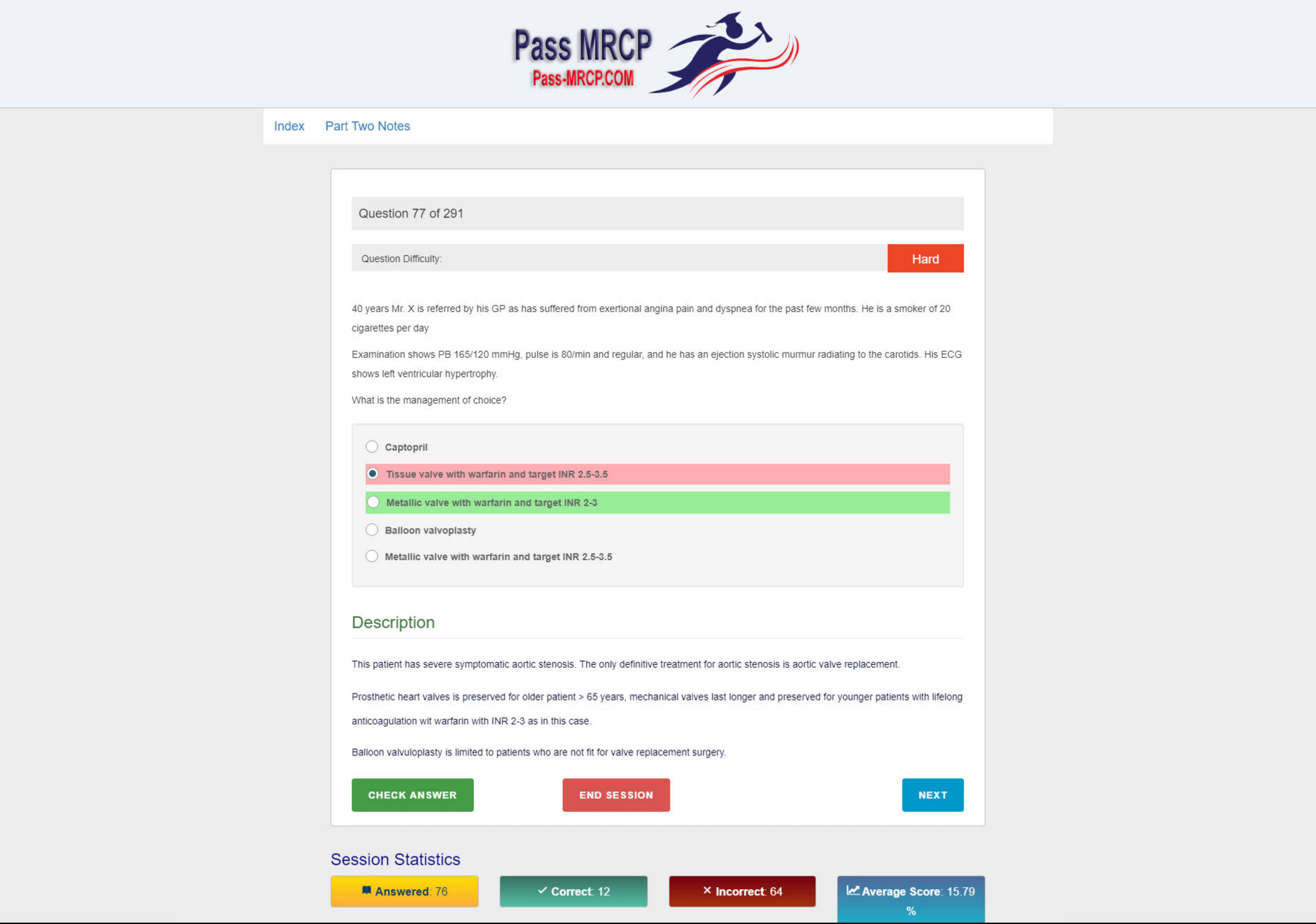
● **Switch to long-acting nitrate**
○ **Switch to ranolazine**
○ **Coronary artery bypass graft**
○ **Add long-acting nitrate to B-blocker and calcium channel blocker**
○ **Percutaneous coronary intervention**

Description

CABG (Coronary artery bypass graft) and PCI (Percutaneous coronary intervention) are considered for patients with stable angina whose symptoms are not satisfactorily controlled with optimal medical treatment.

CABG is indicated over PCI for people with multi-vessel disease whose symptoms are not satisfactorily controlled with optimal medical treatment and who:

- Have diabetes
- Are over 65 years
- Have anatomically complex 3-vessel disease with or without involvement of the left main stem



Question 77 of 291

Question Difficulty: Hard

40 years Mr. X is referred by his GP as has suffered from exertional angina pain and dyspnea for the past few months. He is a smoker of 20 cigarettes per day

Examination shows PB 165/120 mmHg, pulse is 80/min and regular, and he has an ejection systolic murmur radiating to the carotids. His ECG shows left ventricular hypertrophy.

What is the management of choice?

- ○ **Captopril**
- ● **Tissue valve with warfarin and target INR 2.5-3.5**
- ○ **Metallic valve with warfarin and target INR 2-3**
- ○ **Balloon valvoplasty**
- ○ **Metallic valve with warfarin and target INR 2.5-3.5**

Description

This patient has severe symptomatic aortic stenosis. The only definitive treatment for aortic stenosis is aortic valve replacement.

Prosthetic heart valves is preserved for older patient > 65 years, mechanical valves last longer and preserved for younger patients with lifelong anticoagulation wit warfarin with INR 2-3 as in this case.

Balloon valvuloplasty is limited to patients who are not fit for valve replacement surgery.

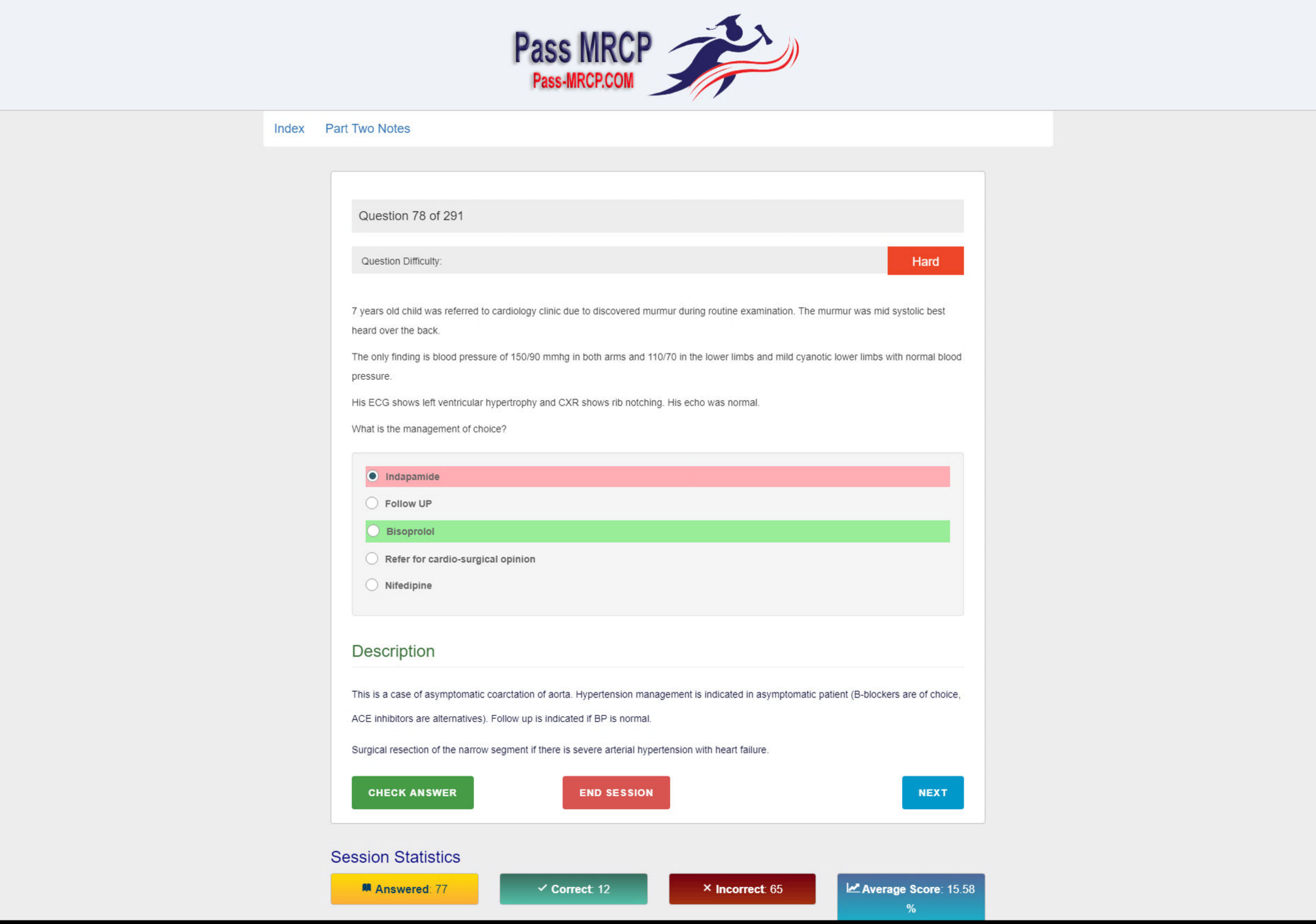
Session Statistics

Answered: 76

✓ **Correct**: 12

✕ **Incorrect**: 64

Average Score: 15.79 %



Question 78 of 291

7 years old child was referred to cardiology clinic due to discovered murmur during routine examination. The murmur was mid systolic best heard over the back.

The only finding is blood pressure of 150/90 mmhg in both arms and 110/70 in the lower limbs and mild cyanotic lower limbs with normal blood pressure.

His ECG shows left ventricular hypertrophy and CXR shows rib notching. His echo was normal.

What is the management of choice?

● Indapamide
○ Follow UP
○ Bisoprolol
○ Refer for cardio-surgical opinion
○ Nifedipine

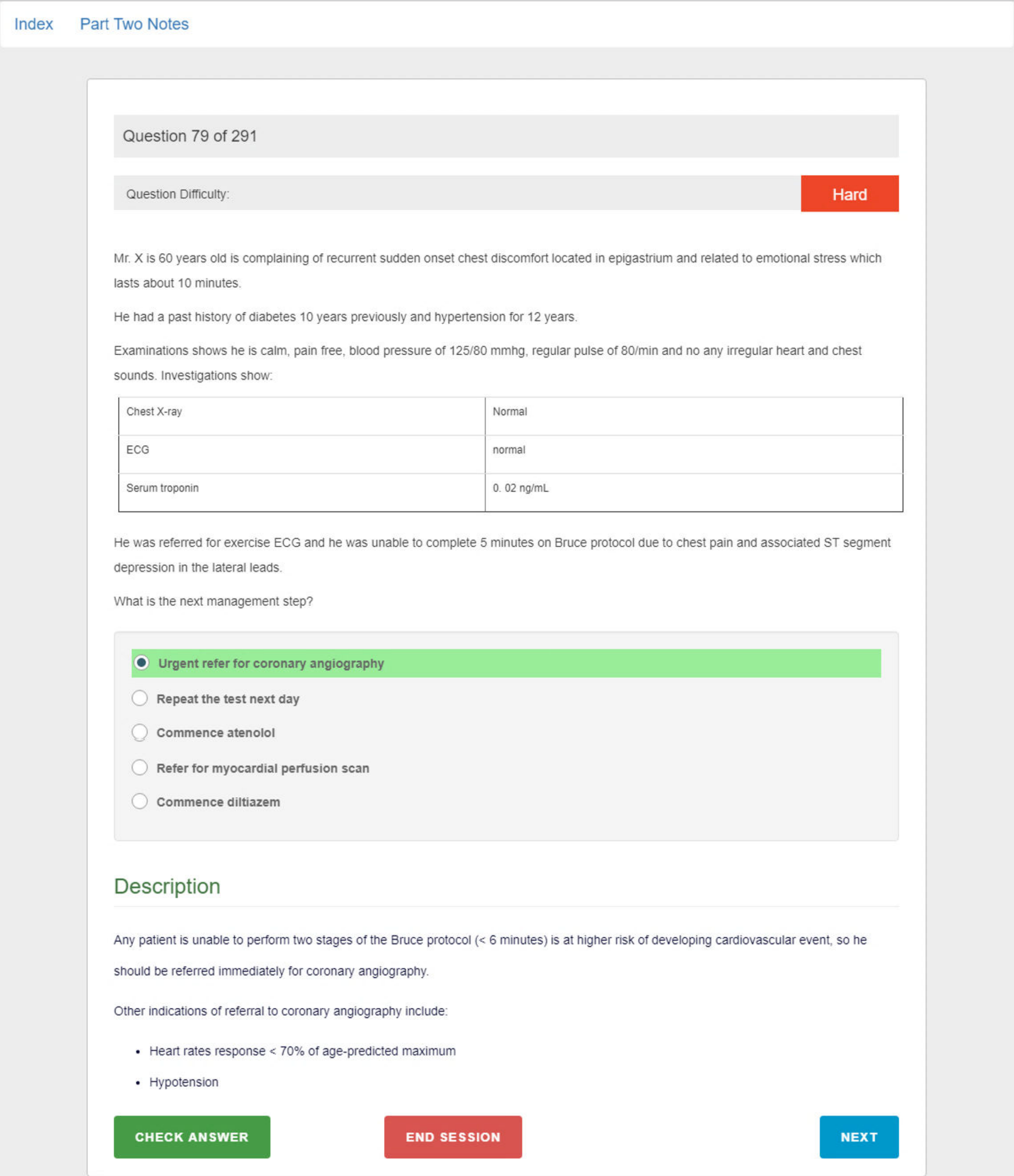
Description

This is a case of asymptomatic coarctation of aorta. Hypertension management is indicated in asymptomatic patient (B-blockers are of choice, ACE inhibitors are alternatives). Follow up is indicated if BP is normal.

Surgical resection of the narrow segment if there is severe arterial hypertension with heart failure.

Session Statistics

Answered: 77
✓ **Correct**: 12
× **Incorrect**: 65
Average Score: 15.58 %



Question 79 of 291

Question Difficulty: **Hard**

Mr. X is 60 years old is complaining of recurrent sudden onset chest discomfort located in epigastrium and related to emotional stress which lasts about 10 minutes.

He had a past history of diabetes 10 years previously and hypertension for 12 years.

Examinations shows he is calm, pain free, blood pressure of 125/80 mmhg, regular pulse of 80/min and no any irregular heart and chest sounds. Investigations show:

Chest X-ray	Normal
ECG	normal
Serum troponin	0. 02 ng/mL

He was referred for exercise ECG and he was unable to complete 5 minutes on Bruce protocol due to chest pain and associated ST segment depression in the lateral leads.

What is the next management step?

● **Urgent refer for coronary angiography**

○ **Repeat the test next day**

○ **Commence atenolol**

○ **Refer for myocardial perfusion scan**

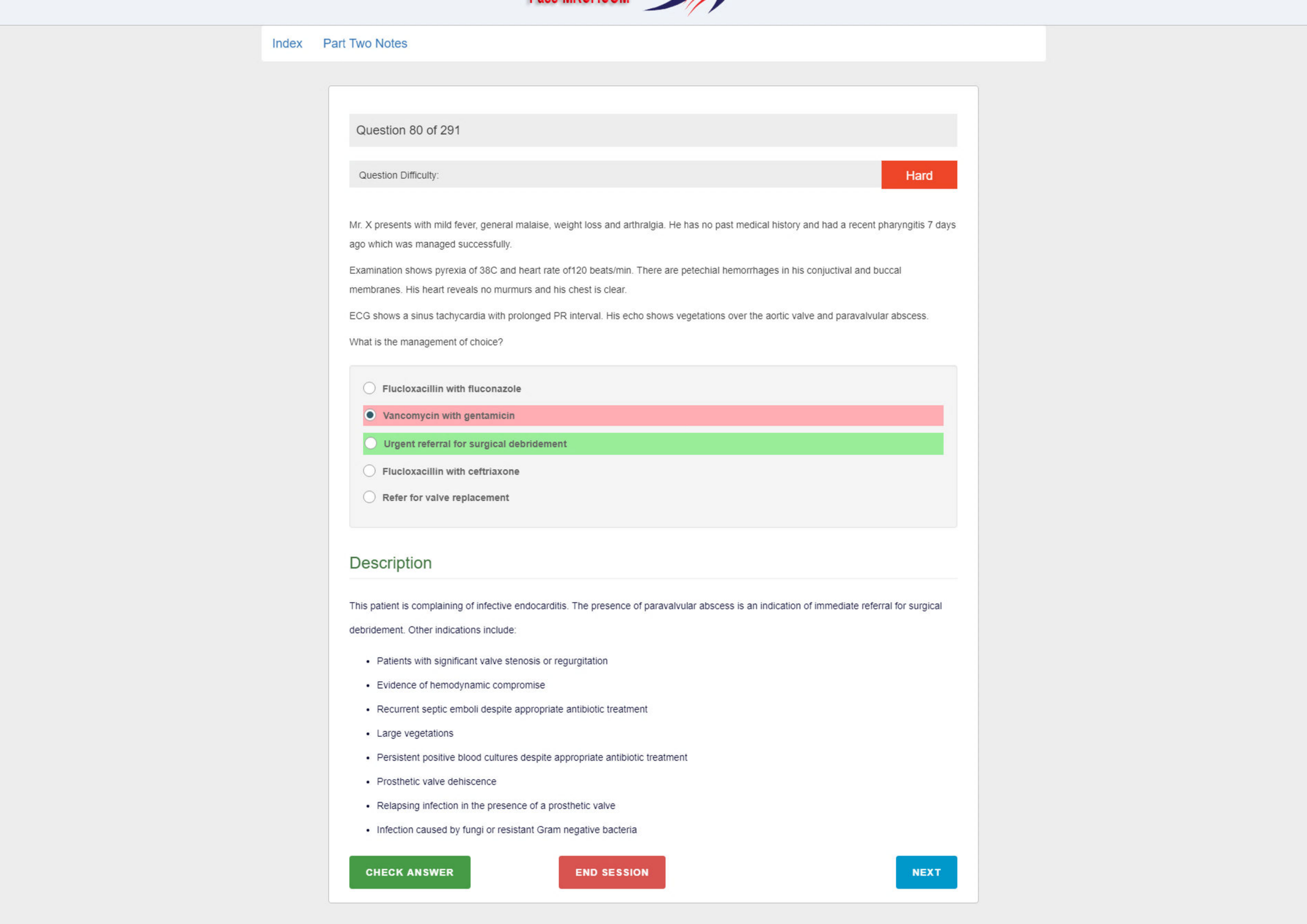
○ **Commence diltiazem**

Description

Any patient is unable to perform two stages of the Bruce protocol (< 6 minutes) is at higher risk of developing cardiovascular event, so he should be referred immediately for coronary angiography.

Other indications of referral to coronary angiography include:

- Heart rates response < 70% of age-predicted maximum
- Hypotension



Question 80 of 291

Question Difficulty: **Hard**

Mr. X presents with mild fever, general malaise, weight loss and arthralgia. He has no past medical history and had a recent pharyngitis 7 days ago which was managed successfully.

Examination shows pyrexia of 38C and heart rate of120 beats/min. There are petechial hemorrhages in his conjuctival and buccal membranes. His heart reveals no murmurs and his chest is clear.

ECG shows a sinus tachycardia with prolonged PR interval. His echo shows vegetations over the aortic valve and paravalvular abscess.

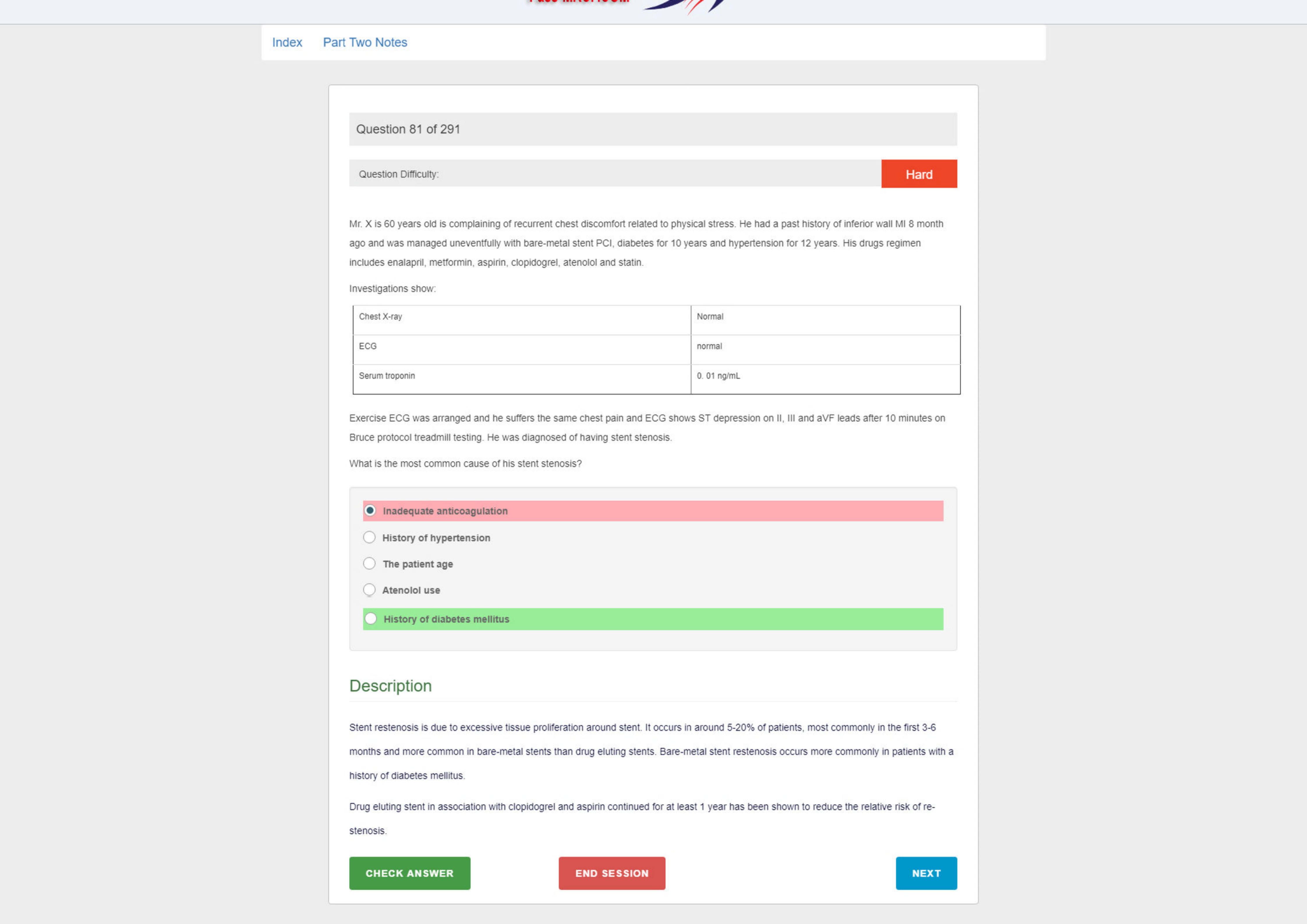
What is the management of choice?

- ○ **Flucloxacillin with fluconazole**
- ● **Vancomycin with gentamicin** 🟥
- ○ **Urgent referral for surgical debridement** 🟩
- ○ **Flucloxacillin with ceftriaxone**
- ○ **Refer for valve replacement**

Description

This patient is complaining of infective endocarditis. The presence of paravalvular abscess is an indication of immediate referral for surgical debridement. Other indications include:

- Patients with significant valve stenosis or regurgitation
- Evidence of hemodynamic compromise
- Recurrent septic emboli despite appropriate antibiotic treatment
- Large vegetations
- Persistent positive blood cultures despite appropriate antibiotic treatment
- Prosthetic valve dehiscence
- Relapsing infection in the presence of a prosthetic valve
- Infection caused by fungi or resistant Gram negative bacteria



Question 81 of 291

Question Difficulty: **Hard**

Mr. X is 60 years old is complaining of recurrent chest discomfort related to physical stress. He had a past history of inferior wall MI 8 month ago and was managed uneventfully with bare-metal stent PCI, diabetes for 10 years and hypertension for 12 years. His drugs regimen includes enalapril, metformin, aspirin, clopidogrel, atenolol and statin.

Investigations show:

Chest X-ray	Normal
ECG	normal
Serum troponin	0. 01 ng/mL

Exercise ECG was arranged and he suffers the same chest pain and ECG shows ST depression on II, III and aVF leads after 10 minutes on Bruce protocol treadmill testing. He was diagnosed of having stent stenosis.

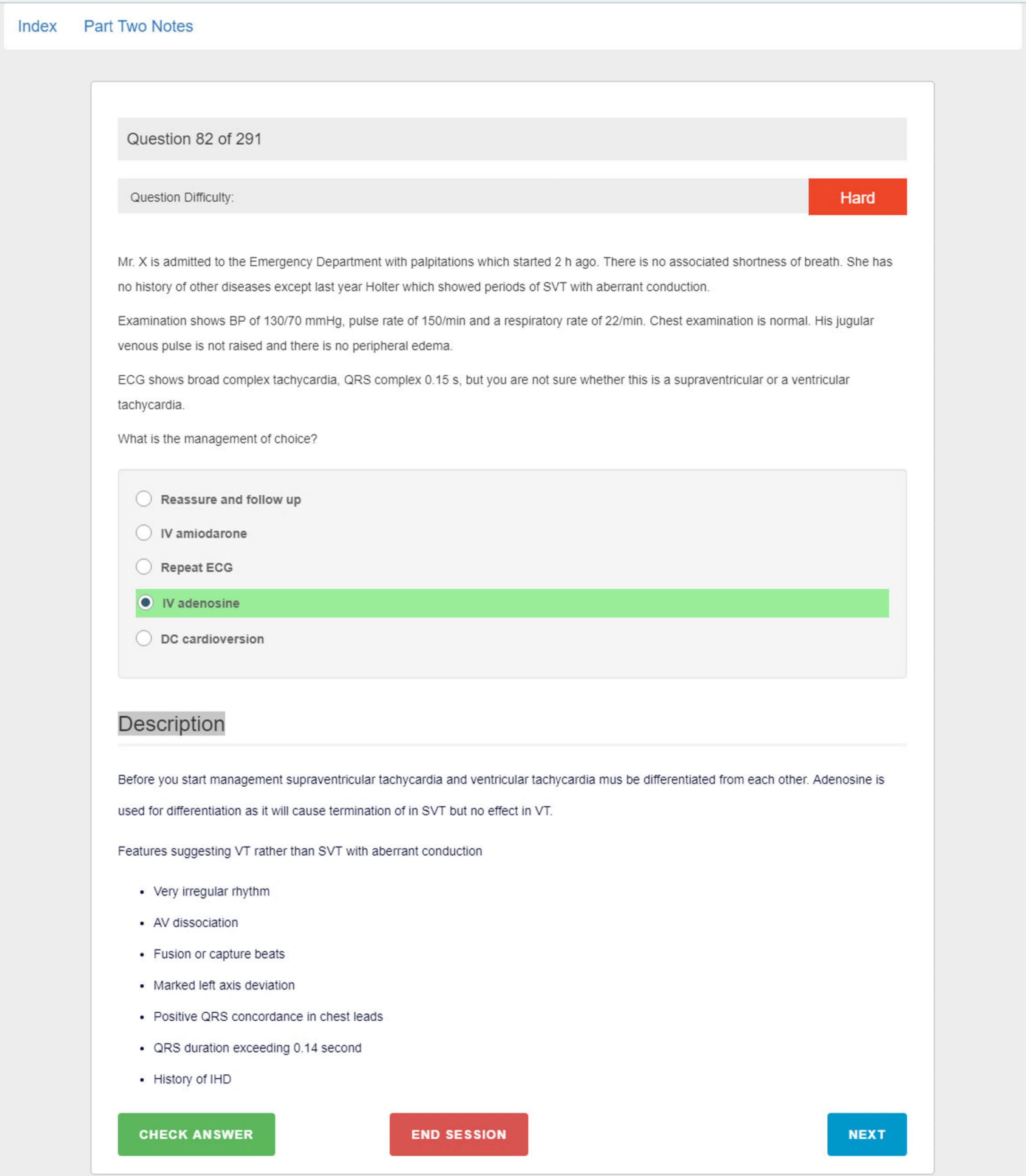
What is the most common cause of his stent stenosis?

- ● **Inadequate anticoagulation**
- ○ **History of hypertension**
- ○ **The patient age**
- ○ **Atenolol use**
- ○ **History of diabetes mellitus**

Description

Stent restenosis is due to excessive tissue proliferation around stent. It occurs in around 5-20% of patients, most commonly in the first 3-6 months and more common in bare-metal stents than drug eluting stents. Bare-metal stent restenosis occurs more commonly in patients with a history of diabetes mellitus.

Drug eluting stent in association with clopidogrel and aspirin continued for at least 1 year has been shown to reduce the relative risk of re-stenosis.



Question 82 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the Emergency Department with palpitations which started 2 h ago. There is no associated shortness of breath. She has no history of other diseases except last year Holter which showed periods of SVT with aberrant conduction.

Examination shows BP of 130/70 mmHg, pulse rate of 150/min and a respiratory rate of 22/min. Chest examination is normal. His jugular venous pulse is not raised and there is no peripheral edema.

ECG shows broad complex tachycardia, QRS complex 0.15 s, but you are not sure whether this is a supraventricular or a ventricular tachycardia.

What is the management of choice?

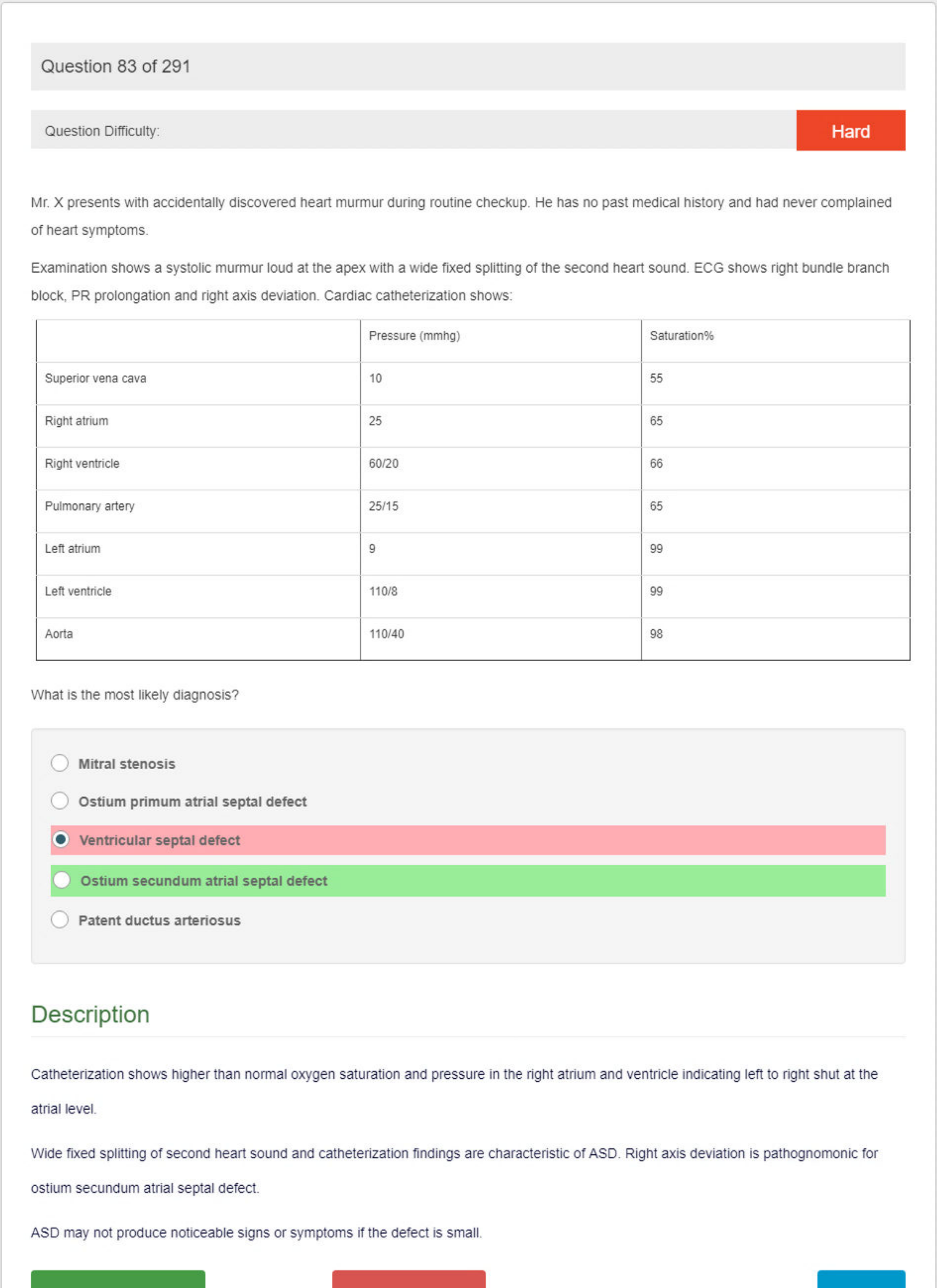
○ **Reassure and follow up**
○ **IV amiodarone**
○ **Repeat ECG**
● **IV adenosine**
○ **DC cardioversion**

Description

Before you start management supraventricular tachycardia and ventricular tachycardia mus be differentiated from each other. Adenosine is used for differentiation as it will cause termination of in SVT but no effect in VT.

Features suggesting VT rather than SVT with aberrant conduction

- Very irregular rhythm
- AV dissociation
- Fusion or capture beats
- Marked left axis deviation
- Positive QRS concordance in chest leads
- QRS duration exceeding 0.14 second
- History of IHD



Question 83 of 291

Question Difficulty: **Hard**

Mr. X presents with accidentally discovered heart murmur during routine checkup. He has no past medical history and had never complained of heart symptoms.

Examination shows a systolic murmur loud at the apex with a wide fixed splitting of the second heart sound. ECG shows right bundle branch block, PR prolongation and right axis deviation. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	25	65
Right ventricle	60/20	66
Pulmonary artery	25/15	65
Left atrium	9	99
Left ventricle	110/8	99
Aorta	110/40	98

What is the most likely diagnosis?

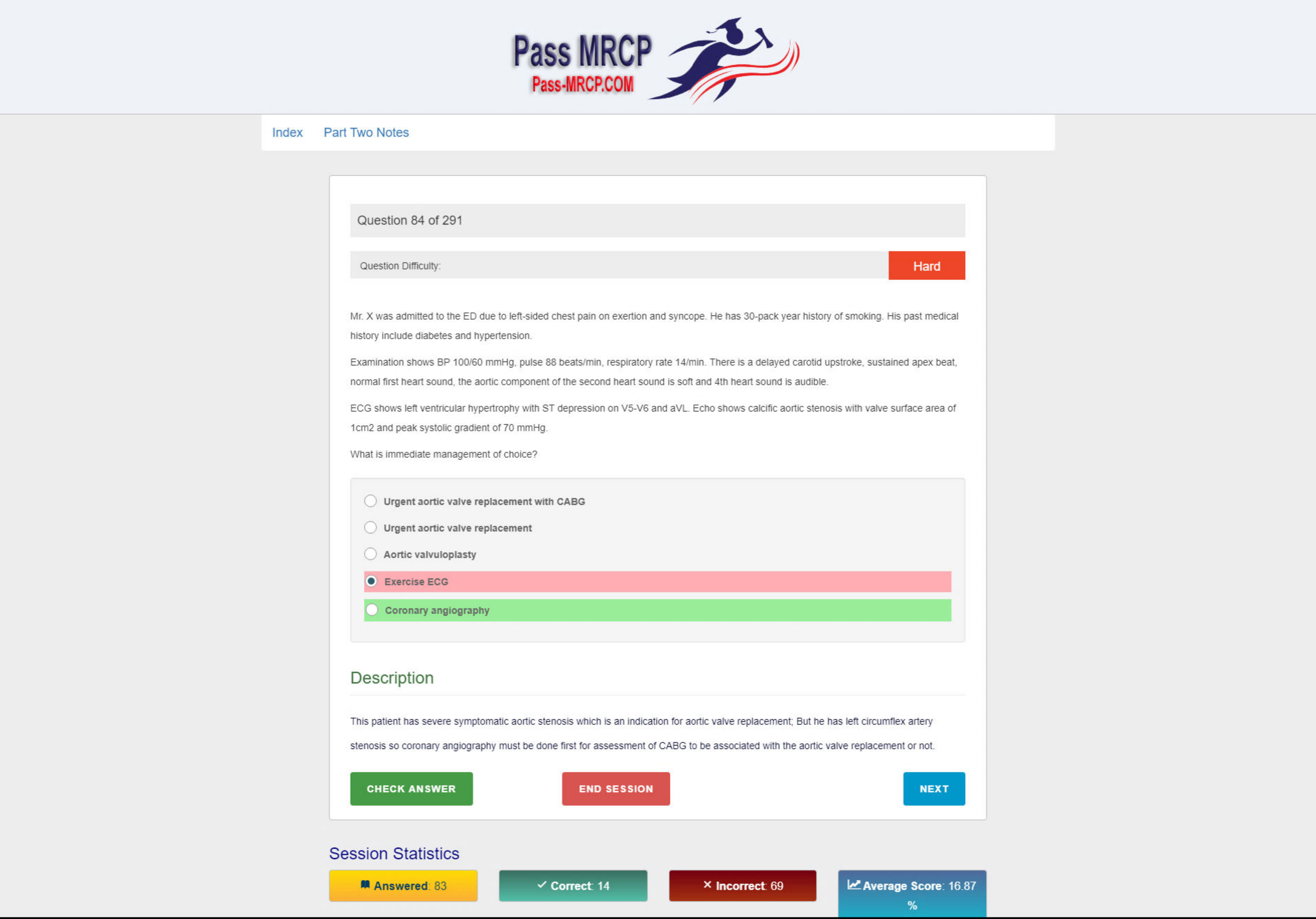
- ○ **Mitral stenosis**
- ○ **Ostium primum atrial septal defect**
- ● **Ventricular septal defect**
- ○ **Ostium secundum atrial septal defect**
- ○ **Patent ductus arteriosus**

Description

Catheterization shows higher than normal oxygen saturation and pressure in the right atrium and ventricle indicating left to right shut at the atrial level.

Wide fixed splitting of second heart sound and catheterization findings are characteristic of ASD. Right axis deviation is pathognomonic for ostium secundum atrial septal defect.

ASD may not produce noticeable signs or symptoms if the defect is small.



Question 84 of 291

Question Difficulty: Hard

Mr. X was admitted to the ED due to left-sided chest pain on exertion and syncope. He has 30-pack year history of smoking. His past medical history include diabetes and hypertension.

Examination shows BP 100/60 mmHg, pulse 88 beats/min, respiratory rate 14/min. There is a delayed carotid upstroke, sustained apex beat, normal first heart sound, the aortic component of the second heart sound is soft and 4th heart sound is audible.

ECG shows left ventricular hypertrophy with ST depression on V5-V6 and aVL. Echo shows calcific aortic stenosis with valve surface area of 1cm2 and peak systolic gradient of 70 mmHg.

What is immediate management of choice?

- ○ **Urgent aortic valve replacement with CABG**
- ○ **Urgent aortic valve replacement**
- ○ **Aortic valvuloplasty**
- ● **Exercise ECG**
- ○ **Coronary angiography**

Description

This patient has severe symptomatic aortic stenosis which is an indication for aortic valve replacement; But he has left circumflex artery stenosis so coronary angiography must be done first for assessment of CABG to be associated with the aortic valve replacement or not.

Session Statistics

Answered: 83
✓ Correct: 14
✕ Incorrect: 69
Average Score: 16.87 %

Question 85 of 291

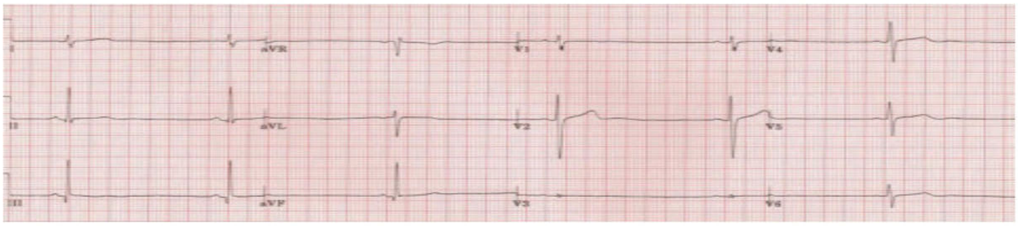
Question Difficulty: **Hard**

Mr. X was admitted to the ICU complaining of sever dyspnea at rest. He was diagnosed of having NYHA II heart failure 2 years ago and was stabilized on ramipril 5 mg BID, furosemide 20 mg BID and carvedilol 12.5 BID.

Physical examination shows BP of 160/95 mmHg, a raised JVP, peripheral edema and bilateral pulmonary crepitation. Investigations show:

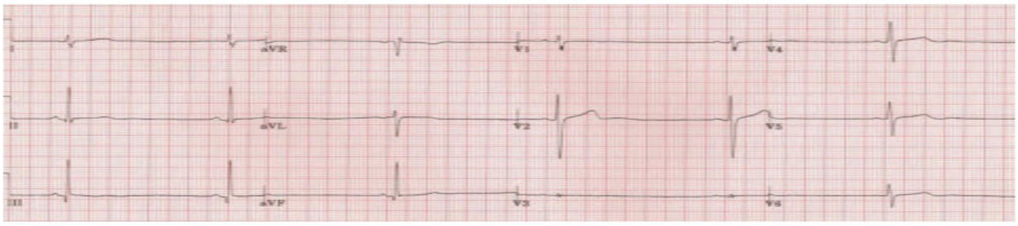
Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	110 µmol/L	(53-106 µmol/L)

His ECG is shown in the image.



He was started on Furosemide 40 mg bolus and 10 mg/hour.

What should be offered for him next?
His ECG is shown in the image.



He was started on Furosemide 40 mg bolus and 10 mg/hour.

What should be offered for him next?

○ Increase the dose of ramipril
● Add spironolactone
○ Start diltiazem
○ Stop carvedilol
○ Increase the dose of furosemide

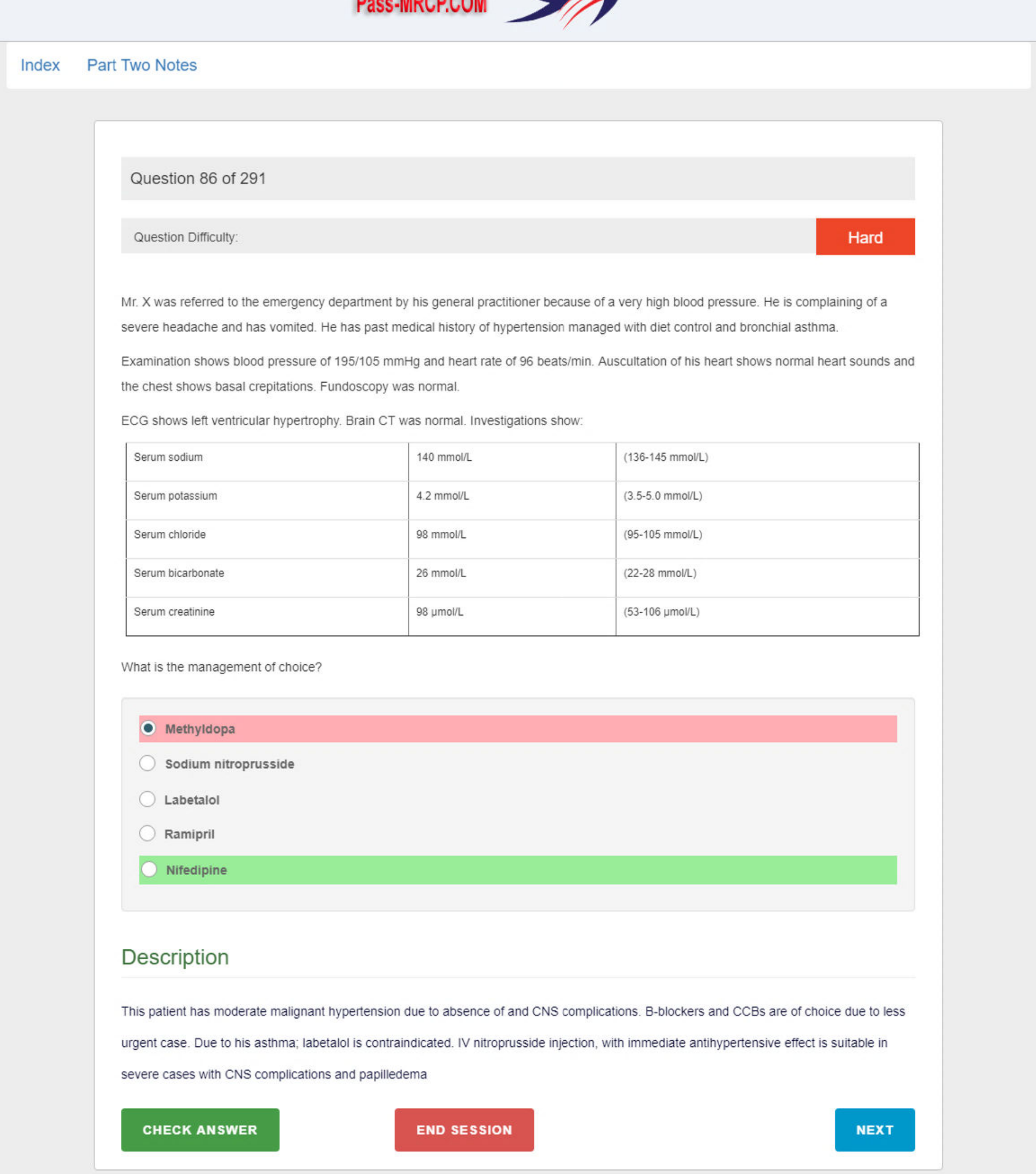
Description

The patient developed bradycardia, B-blocker should be stopped if the heart rate is less than 50 beats per minute (37/min in this case), second or third degree AV block, or cardiogenic shock.

CHECK ANSWER END SESSION NEXT

Session Statistics

Answered: 84
✓ **Correct**: 14
✕ **Incorrect**: 70
Average Score: 16.67 %



Question 86 of 291

Question Difficulty: **Hard**

Mr. X was referred to the emergency department by his general practitioner because of a very high blood pressure. He is complaining of a severe headache and has vomited. He has past medical history of hypertension managed with diet control and bronchial asthma.

Examination shows blood pressure of 195/105 mmHg and heart rate of 96 beats/min. Auscultation of his heart shows normal heart sounds and the chest shows basal crepitations. Fundoscopy was normal.

ECG shows left ventricular hypertrophy. Brain CT was normal. Investigations show:

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	98 mmol/L	(95-105 mmol/L)
Serum bicarbonate	26 mmol/L	(22-28 mmol/L)
Serum creatinine	98 µmol/L	(53-106 µmol/L)

What is the management of choice?

● **Methyldopa**

○ **Sodium nitroprusside**

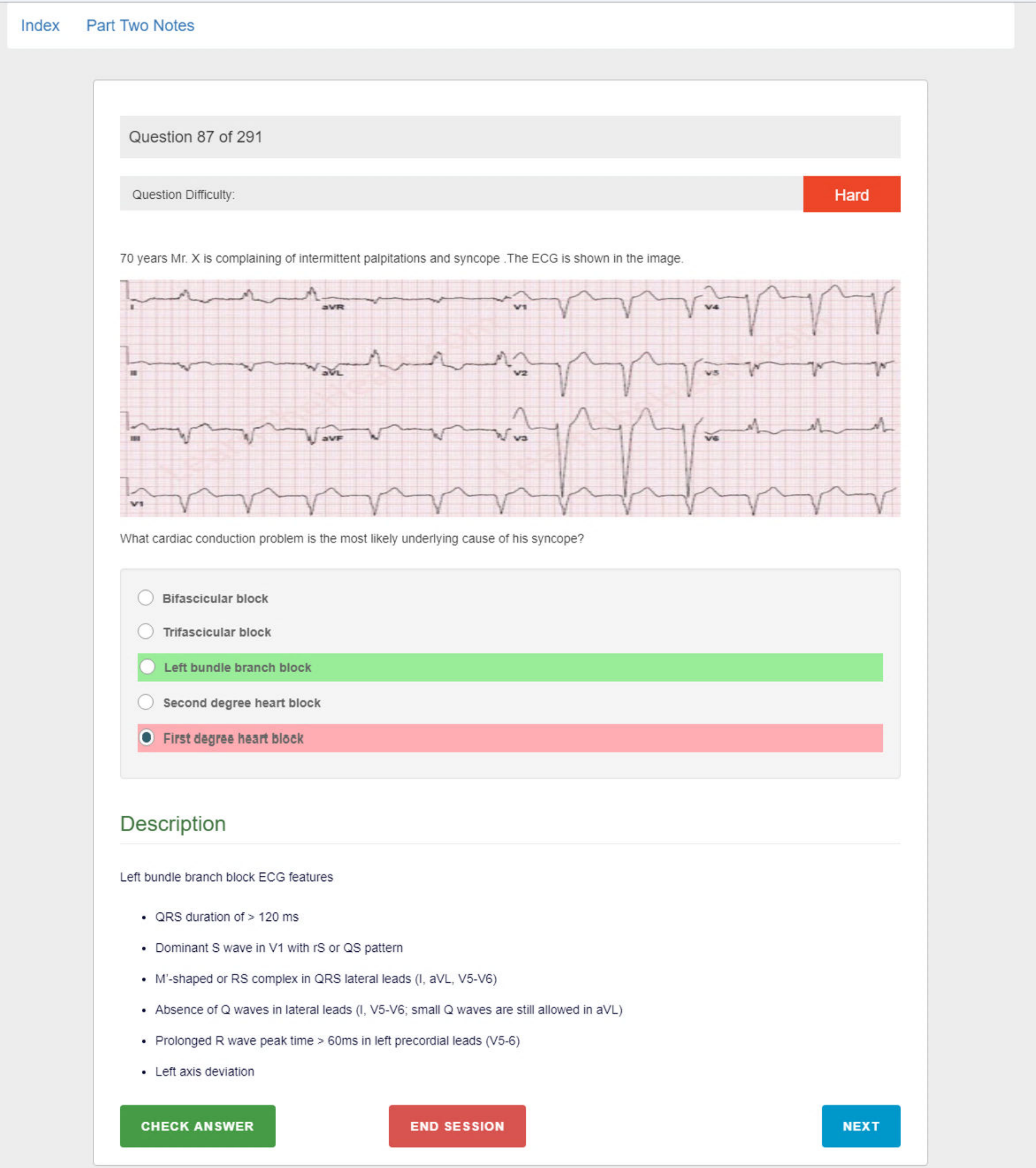
○ **Labetalol**

○ **Ramipril**

○ **Nifedipine**

Description

This patient has moderate malignant hypertension due to absence of and CNS complications. B-blockers and CCBs are of choice due to less urgent case. Due to his asthma; labetalol is contraindicated. IV nitroprusside injection, with immediate antihypertensive effect is suitable in severe cases with CNS complications and papilledema


Index
Part Two Notes
I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
V1
CHECK ANSWER
END SESSION
NEXT

Question 87 of 291

Question Difficulty: Hard

70 years Mr. X is complaining of intermittent palpitations and syncope .The ECG is shown in the image.

What cardiac conduction problem is the most likely underlying cause of his syncope?

○ **Bifascicular block**

○ **Trifascicular block**

○ **Left bundle branch block**

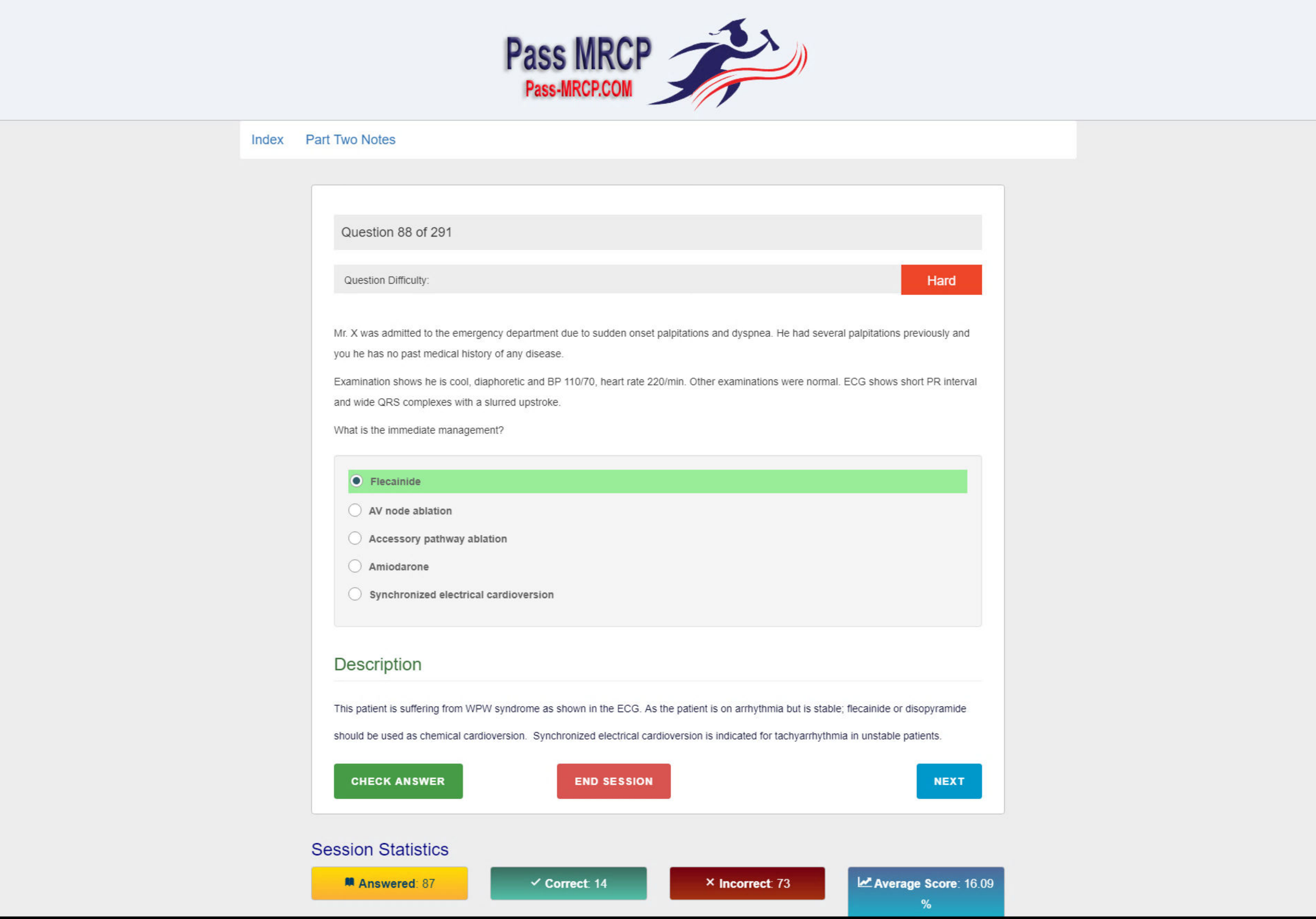
○ **Second degree heart block**

● **First degree heart block**

Description

Left bundle branch block ECG features

- QRS duration of > 120 ms
- Dominant S wave in V1 with rS or QS pattern
- M'-shaped or RS complex in QRS lateral leads (I, aVL, V5-V6)
- Absence of Q waves in lateral leads (I, V5-V6; small Q waves are still allowed in aVL)
- Prolonged R wave peak time > 60ms in left precordial leads (V5-6)
- Left axis deviation



Question 88 of 291

Question Difficulty: Hard

Mr. X was admitted to the emergency department due to sudden onset palpitations and dyspnea. He had several palpitations previously and you he has no past medical history of any disease.

Examination shows he is cool, diaphoretic and BP 110/70, heart rate 220/min. Other examinations were normal. ECG shows short PR interval and wide QRS complexes with a slurred upstroke.

What is the immediate management?

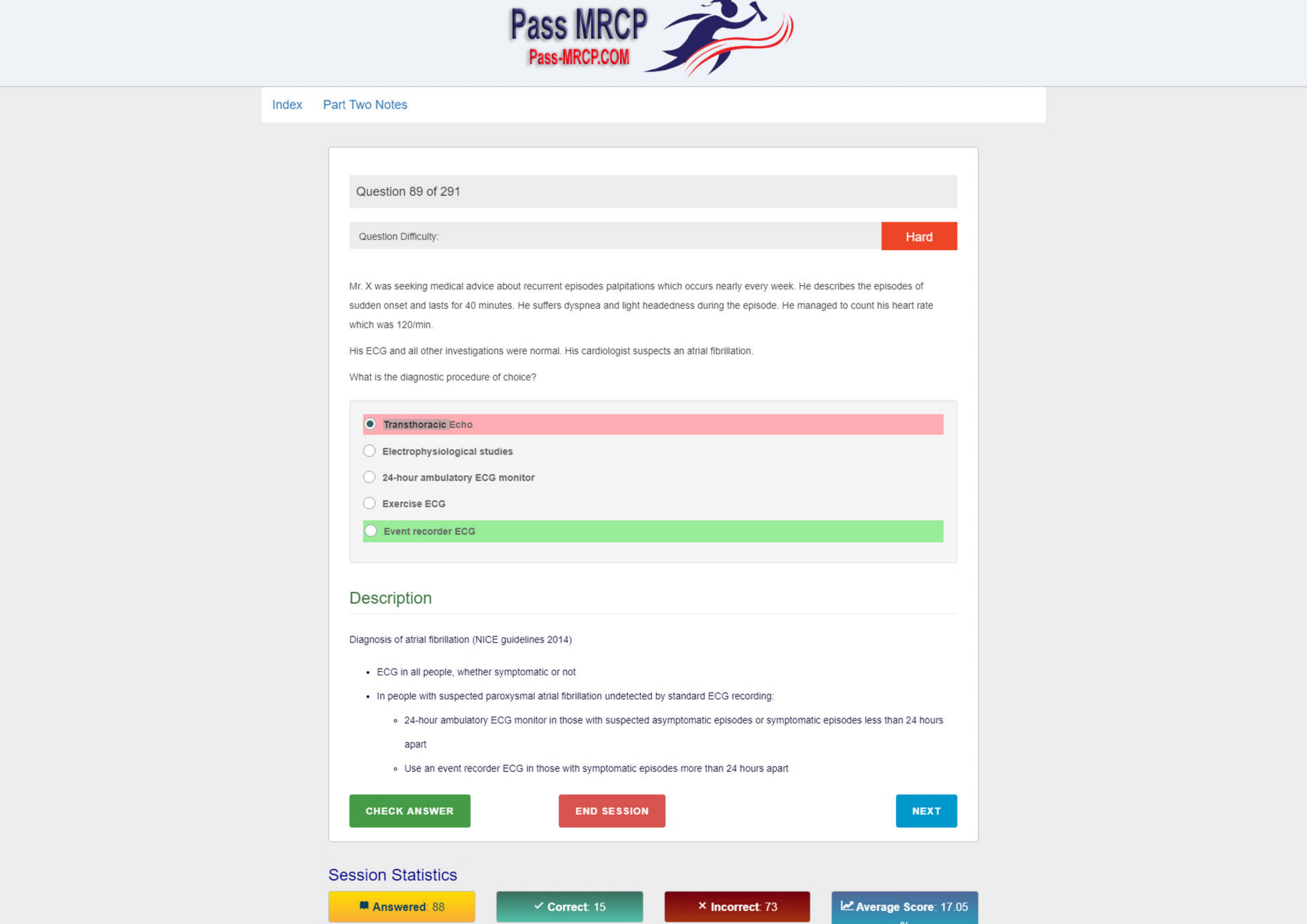
- ● **Flecainide**
- ○ **AV node ablation**
- ○ **Accessory pathway ablation**
- ○ **Amiodarone**
- ○ **Synchronized electrical cardioversion**

Description

This patient is suffering from WPW syndrome as shown in the ECG. As the patient is on arrhythmia but is stable; flecainide or disopyramide should be used as chemical cardioversion. Synchronized electrical cardioversion is indicated for tachyarrhythmia in unstable patients.

Session Statistics

Answered: 87
✓ **Correct**: 14
✕ **Incorrect**: 73
Average Score: 16.09 %



Question 89 of 291

Question Difficulty: **Hard**

Mr. X was seeking medical advice about recurrent episodes palpitations which occurs nearly every week. He describes the episodes of sudden onset and lasts for 40 minutes. He suffers dyspnea and light headedness during the episode. He managed to count his heart rate which was 120/min.

His ECG and all other investigations were normal. His cardiologist suspects an atrial fibrillation.

What is the diagnostic procedure of choice?

● **Transthoracic Echo**

○ **Electrophysiological studies**

○ **24-hour ambulatory ECG monitor**

○ **Exercise ECG**

○ **Event recorder ECG**

Description

Diagnosis of atrial fibrillation (NICE guidelines 2014)

- ECG in all people, whether symptomatic or not
- In people with suspected paroxysmal atrial fibrillation undetected by standard ECG recording:
  - 24-hour ambulatory ECG monitor in those with suspected asymptomatic episodes or symptomatic episodes less than 24 hours apart
  - Use an event recorder ECG in those with symptomatic episodes more than 24 hours apart

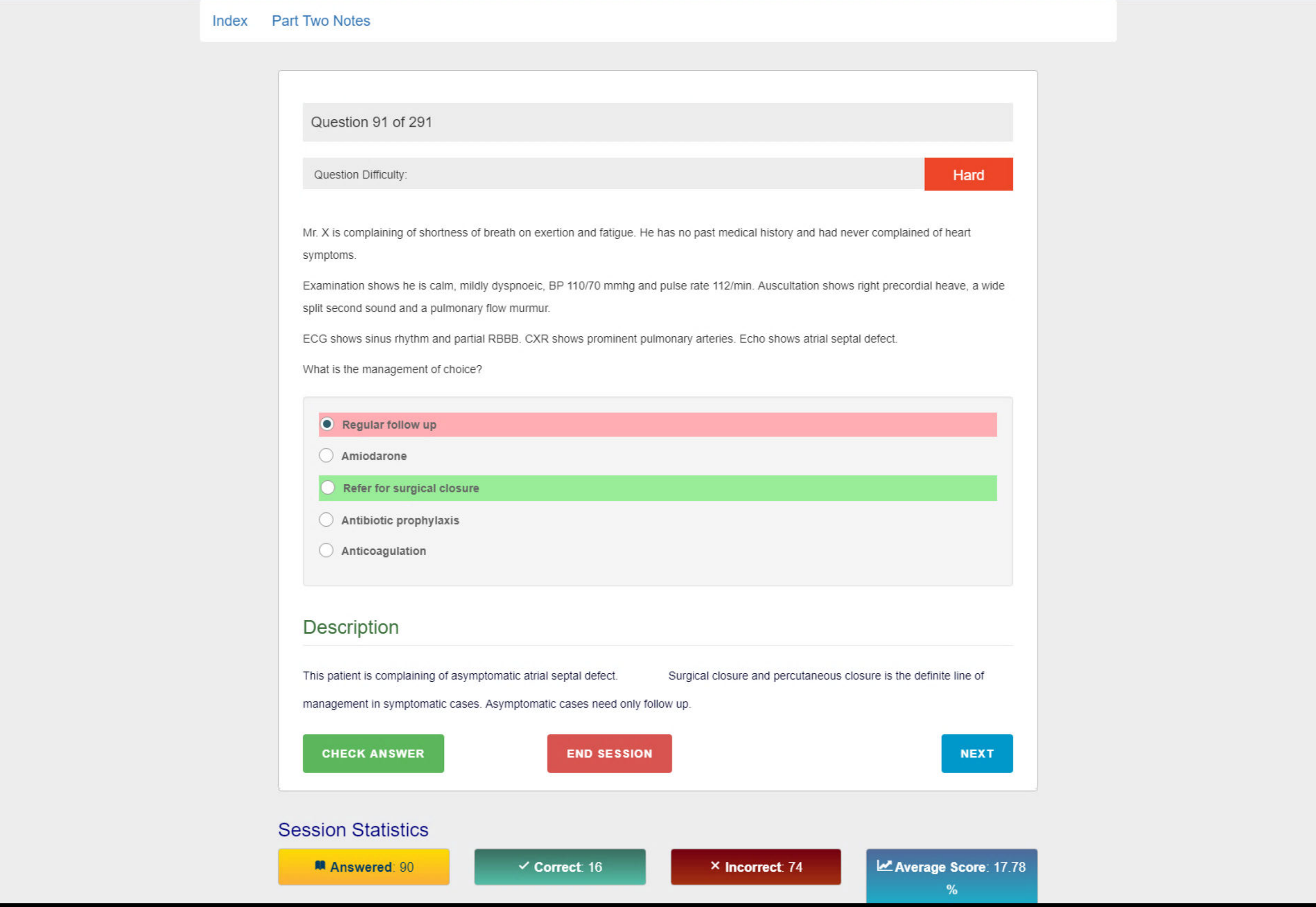
Session Statistics

Answered: 88

Correct: 15

Incorrect: 73

Average Score: 17.05



Question 91 of 291

Question Difficulty: Hard

Mr. X is complaining of shortness of breath on exertion and fatigue. He has no past medical history and had never complained of heart symptoms.

Examination shows he is calm, mildly dyspnoeic, BP 110/70 mmhg and pulse rate 112/min. Auscultation shows right precordial heave, a wide split second sound and a pulmonary flow murmur.

ECG shows sinus rhythm and partial RBBB. CXR shows prominent pulmonary arteries. Echo shows atrial septal defect.

What is the management of choice?

- ● **Regular follow up**
- ○ **Amiodarone**
- ○ **Refer for surgical closure**
- ○ **Antibiotic prophylaxis**
- ○ **Anticoagulation**

Description

This patient is complaining of asymptomatic atrial septal defect. Surgical closure and percutaneous closure is the definite line of management in symptomatic cases. Asymptomatic cases need only follow up.

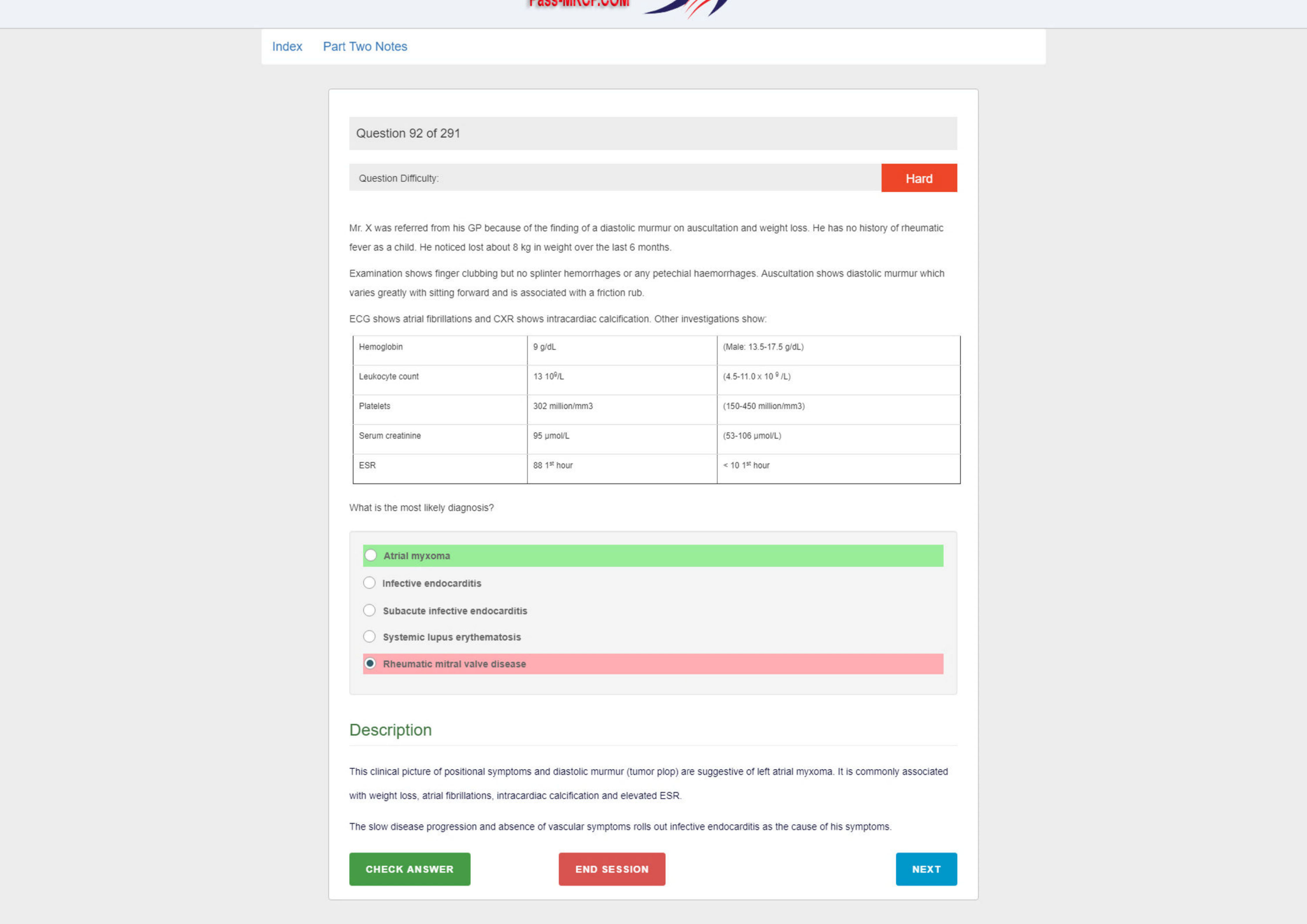
Session Statistics

Answered: 90

✓ **Correct**: 16

× **Incorrect**: 74

Average Score: 17.78 %



Question 92 of 291

Question Difficulty: **Hard**

Mr. X was referred from his GP because of the finding of a diastolic murmur on auscultation and weight loss. He has no history of rheumatic fever as a child. He noticed lost about 8 kg in weight over the last 6 months.

Examination shows finger clubbing but no splinter hemorrhages or any petechial haemorrhages. Auscultation shows diastolic murmur which varies greatly with sitting forward and is associated with a friction rub.

ECG shows atrial fibrillations and CXR shows intracardiac calcification. Other investigations show:

Hemoglobin	9 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	13 10^9/L	(4.5-11.0 x 10^9 /L)
Platelets	302 million/mm3	(150-450 million/mm3)
Serum creatinine	95 µmol/L	(53-106 µmol/L)
ESR	88 1st hour	< 10 1st hour

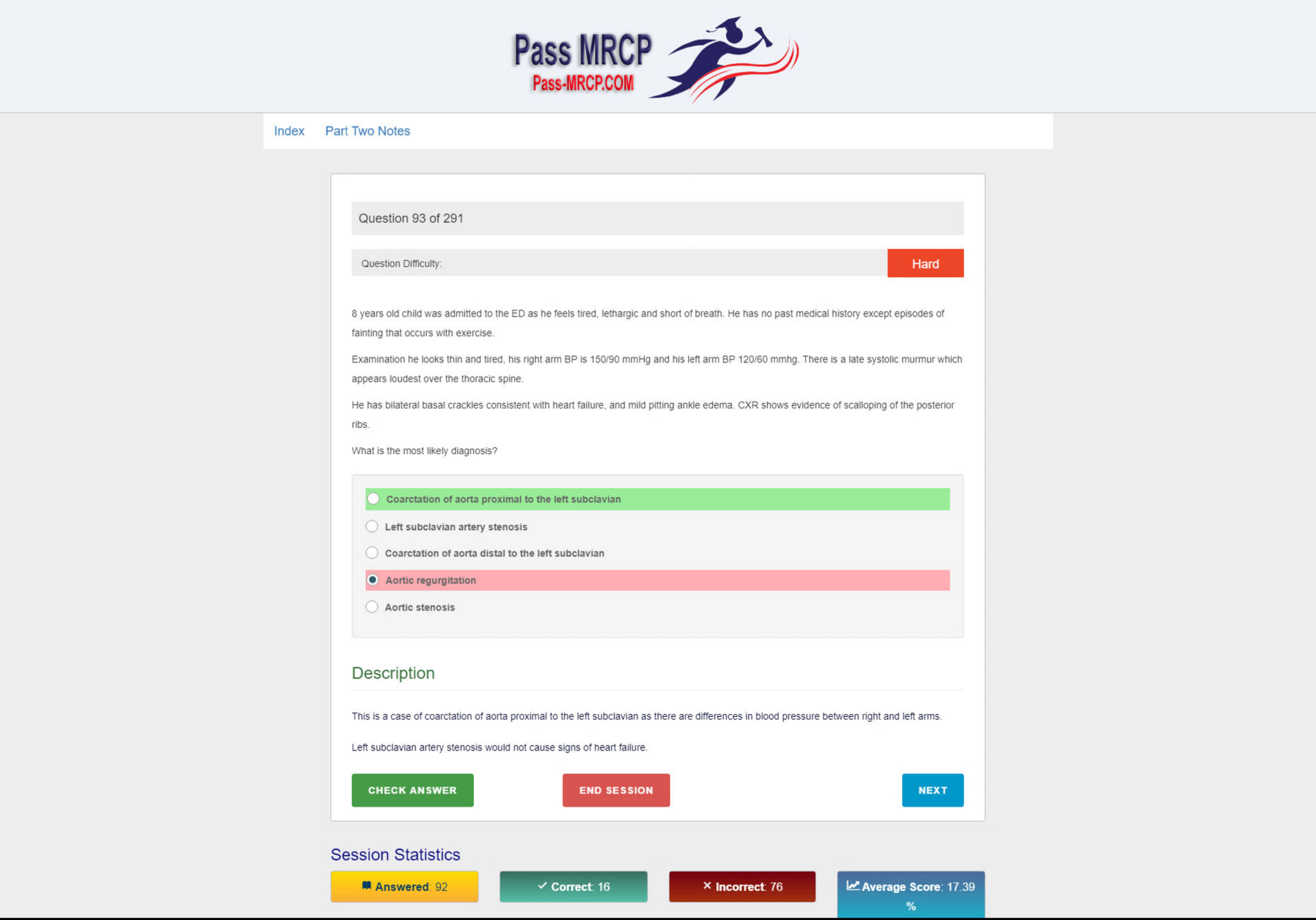
What is the most likely diagnosis?

- ○ **Atrial myxoma**
- ○ **Infective endocarditis**
- ○ **Subacute infective endocarditis**
- ○ **Systemic lupus erythematosis**
- ● **Rheumatic mitral valve disease**

Description

This clinical picture of positional symptoms and diastolic murmur (tumor plop) are suggestive of left atrial myxoma. It is commonly associated with weight loss, atrial fibrillations, intracardiac calcification and elevated ESR.

The slow disease progression and absence of vascular symptoms rolls out infective endocarditis as the cause of his symptoms.



Question 93 of 291

Question Difficulty: **Hard**

8 years old child was admitted to the ED as he feels tired, lethargic and short of breath. He has no past medical history except episodes of fainting that occurs with exercise.

Examination he looks thin and tired, his right arm BP is 150/90 mmHg and his left arm BP 120/60 mmhg. There is a late systolic murmur which appears loudest over the thoracic spine.

He has bilateral basal crackles consistent with heart failure, and mild pitting ankle edema. CXR shows evidence of scalloping of the posterior ribs.

What is the most likely diagnosis?

- ○ **Coarctation of aorta proximal to the left subclavian** 🟩
- ○ **Left subclavian artery stenosis**
- ○ **Coarctation of aorta distal to the left subclavian**
- ● **Aortic regurgitation** 🟥
- ○ **Aortic stenosis**

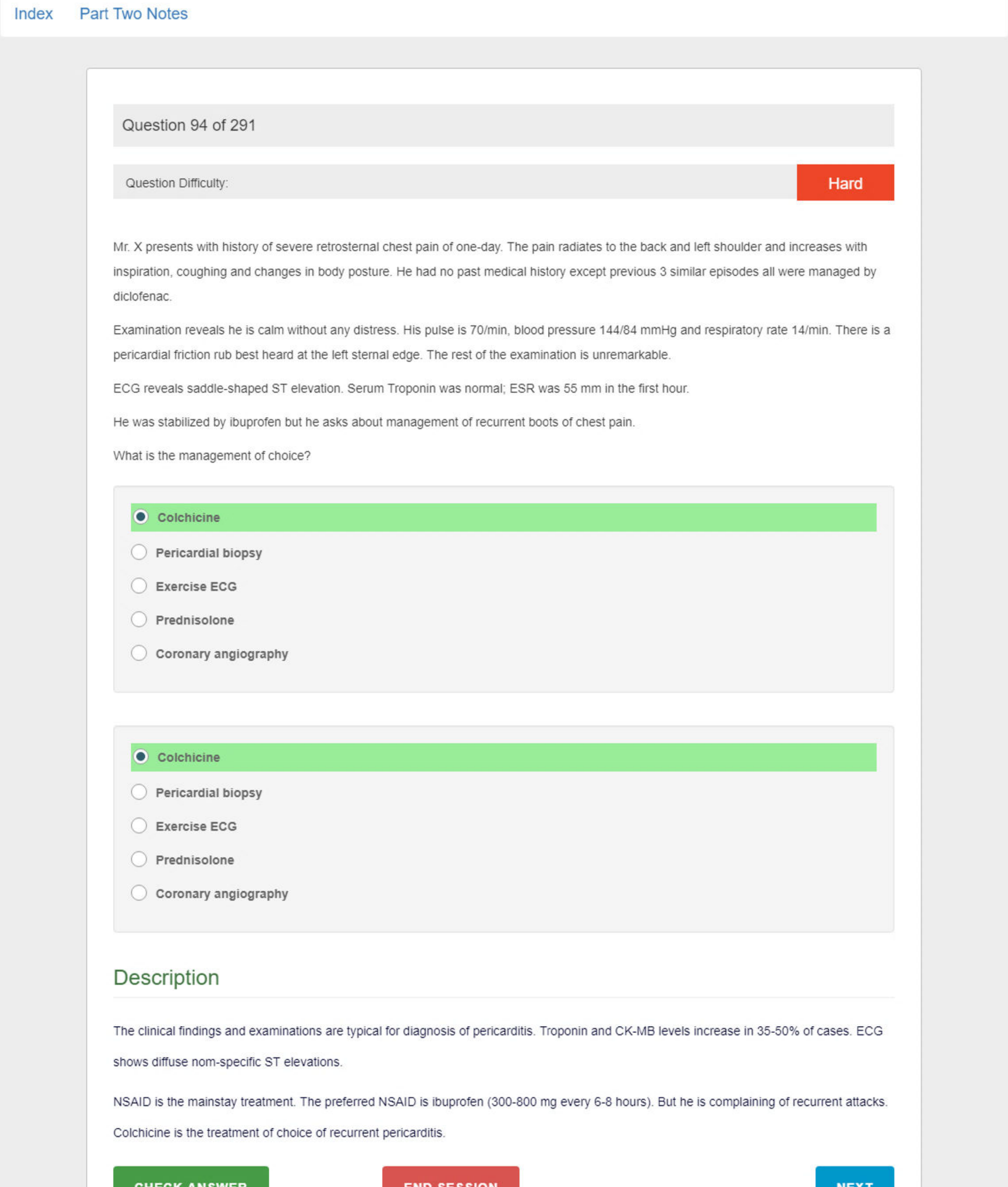
Description

This is a case of coarctation of aorta proximal to the left subclavian as there are differences in blood pressure between right and left arms.

Left subclavian artery stenosis would not cause signs of heart failure.

Session Statistics

Answered: 92
✓ **Correct**: 16
✕ **Incorrect**: 76
Average Score: 17.39 %



Question 94 of 291

Question Difficulty: Hard

Mr. X presents with history of severe retrosternal chest pain of one-day. The pain radiates to the back and left shoulder and increases with inspiration, coughing and changes in body posture. He had no past medical history except previous 3 similar episodes all were managed by diclofenac.

Examination reveals he is calm without any distress. His pulse is 70/min, blood pressure 144/84 mmHg and respiratory rate 14/min. There is a pericardial friction rub best heard at the left sternal edge. The rest of the examination is unremarkable.

ECG reveals saddle-shaped ST elevation. Serum Troponin was normal; ESR was 55 mm in the first hour.

He was stabilized by ibuprofen but he asks about management of recurrent boots of chest pain.

What is the management of choice?

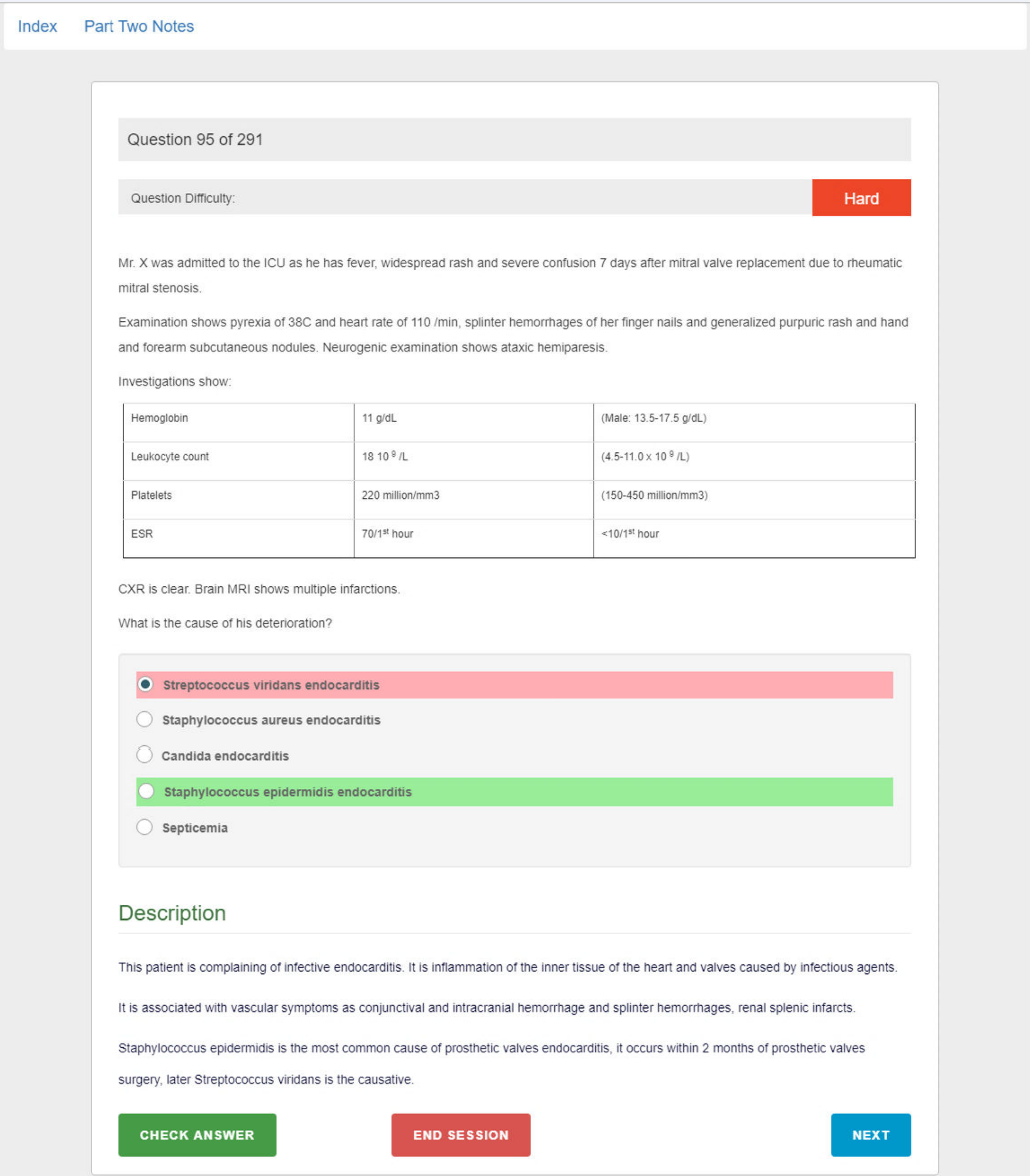
● **Colchicine**
○ **Pericardial biopsy**
○ **Exercise ECG**
○ **Prednisolone**
○ **Coronary angiography**

● **Colchicine**
○ **Pericardial biopsy**
○ **Exercise ECG**
○ **Prednisolone**
○ **Coronary angiography**

Description

The clinical findings and examinations are typical for diagnosis of pericarditis. Troponin and CK-MB levels increase in 35-50% of cases. ECG shows diffuse nom-specific ST elevations.

NSAID is the mainstay treatment. The preferred NSAID is ibuprofen (300-800 mg every 6-8 hours). But he is complaining of recurrent attacks. Colchicine is the treatment of choice of recurrent pericarditis.



Question 95 of 291

Question Difficulty: Hard

Mr. X was admitted to the ICU as he has fever, widespread rash and severe confusion 7 days after mitral valve replacement due to rheumatic mitral stenosis.

Examination shows pyrexia of 38C and heart rate of 110 /min, splinter hemorrhages of her finger nails and generalized purpuric rash and hand and forearm subcutaneous nodules. Neurogenic examination shows ataxic hemiparesis.

Investigations show:

Hemoglobin	11 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	18 10^9 /L	(4.5-11.0 x 10^9 /L)
Platelets	220 million/mm3	(150-450 million/mm3)
ESR	70/1st hour	<10/1st hour

CXR is clear. Brain MRI shows multiple infarctions.

What is the cause of his deterioration?

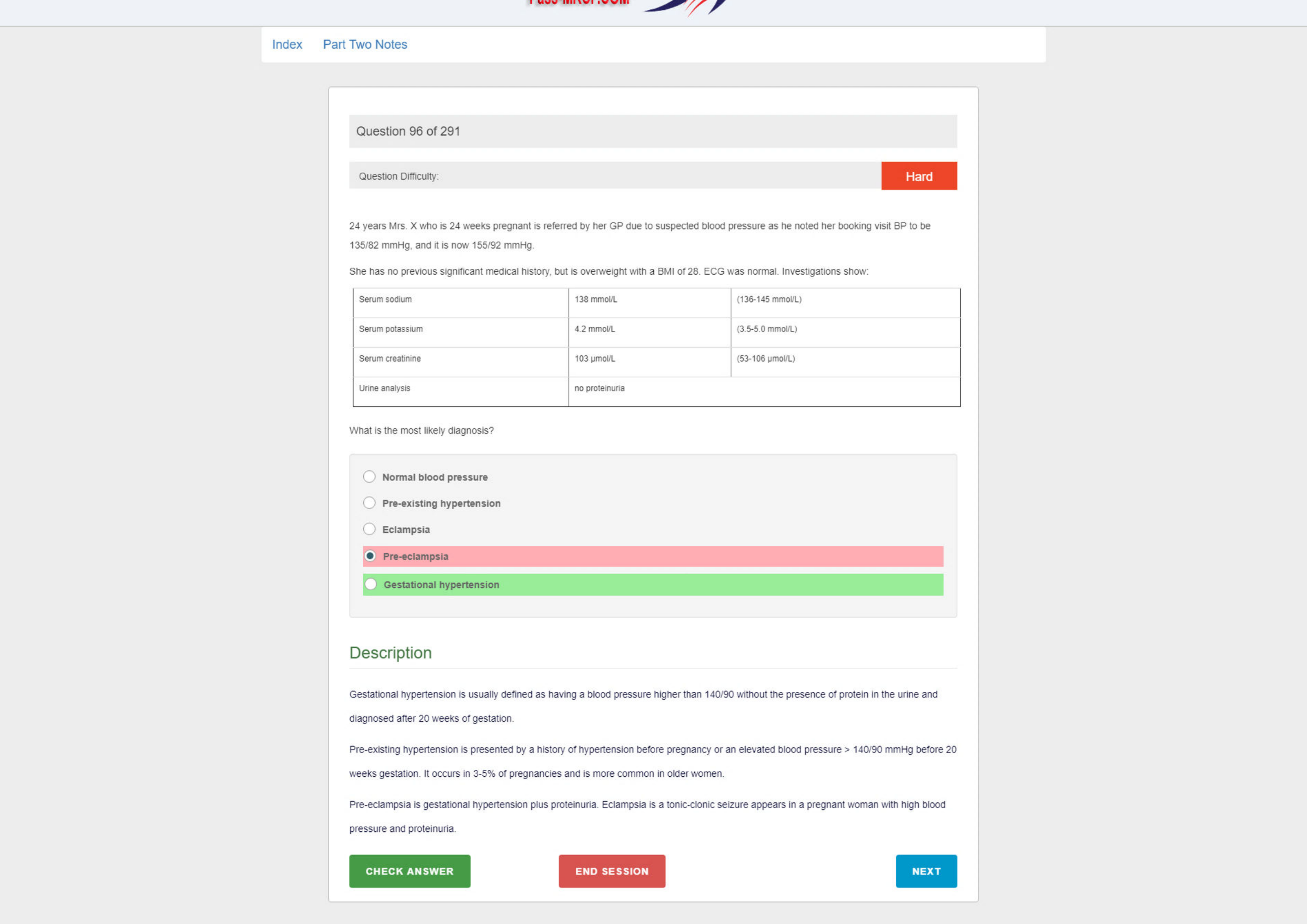
● **Streptococcus viridans endocarditis**
○ **Staphylococcus aureus endocarditis**
○ **Candida endocarditis**
○ **Staphylococcus epidermidis endocarditis**
○ **Septicemia**

Description

This patient is complaining of infective endocarditis. It is inflammation of the inner tissue of the heart and valves caused by infectious agents.

It is associated with vascular symptoms as conjunctival and intracranial hemorrhage and splinter hemorrhages, renal splenic infarcts.

Staphylococcus epidermidis is the most common cause of prosthetic valves endocarditis, it occurs within 2 months of prosthetic valves surgery, later Streptococcus viridans is the causative.



Question 96 of 291

Question Difficulty: **Hard**

24 years Mrs. X who is 24 weeks pregnant is referred by her GP due to suspected blood pressure as he noted her booking visit BP to be 135/82 mmHg, and it is now 155/92 mmHg.

She has no previous significant medical history, but is overweight with a BMI of 28. ECG was normal. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	103 µmol/L	(53-106 µmol/L)
Urine analysis	no proteinuria	

What is the most likely diagnosis?

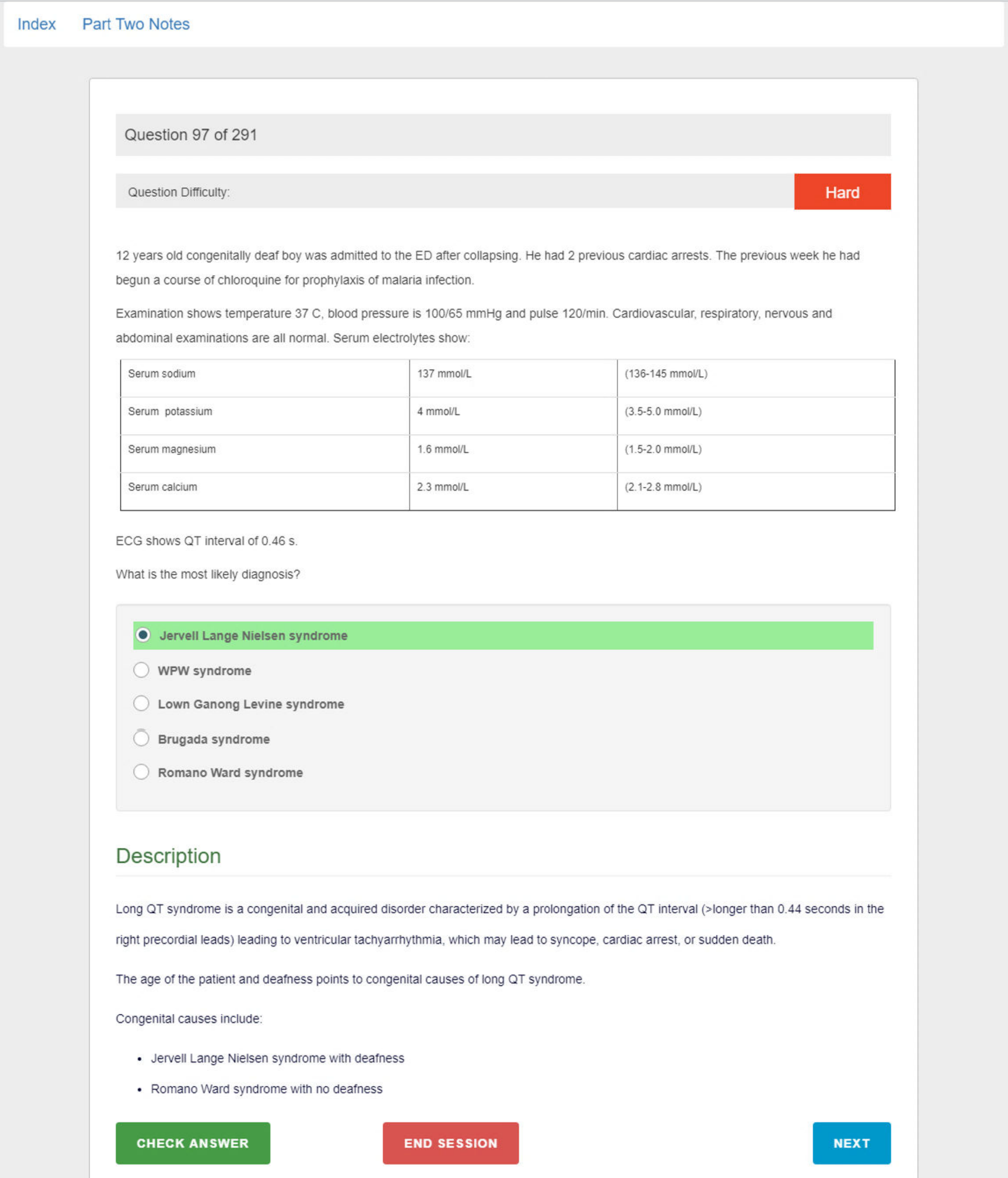
- ○ **Normal blood pressure**
- ○ **Pre-existing hypertension**
- ○ **Eclampsia**
- ● **Pre-eclampsia** 🟥
- ○ **Gestational hypertension** 🟩

Description

Gestational hypertension is usually defined as having a blood pressure higher than 140/90 without the presence of protein in the urine and diagnosed after 20 weeks of gestation.

Pre-existing hypertension is presented by a history of hypertension before pregnancy or an elevated blood pressure > 140/90 mmHg before 20 weeks gestation. It occurs in 3-5% of pregnancies and is more common in older women.

Pre-eclampsia is gestational hypertension plus proteinuria. Eclampsia is a tonic-clonic seizure appears in a pregnant woman with high blood pressure and proteinuria.



Question 97 of 291

Question Difficulty: **Hard**

12 years old congenitally deaf boy was admitted to the ED after collapsing. He had 2 previous cardiac arrests. The previous week he had begun a course of chloroquine for prophylaxis of malaria infection.

Examination shows temperature 37 C, blood pressure is 100/65 mmHg and pulse 120/min. Cardiovascular, respiratory, nervous and abdominal examinations are all normal. Serum electrolytes show:

Serum sodium	137 mmol/L	(136-145 mmol/L)
Serum potassium	4 mmol/L	(3.5-5.0 mmol/L)
Serum magnesium	1.6 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)

ECG shows QT interval of 0.46 s.

What is the most likely diagnosis?

- ● **Jervell Lange Nielsen syndrome**
- ○ **WPW syndrome**
- ○ **Lown Ganong Levine syndrome**
- ○ **Brugada syndrome**
- ○ **Romano Ward syndrome**

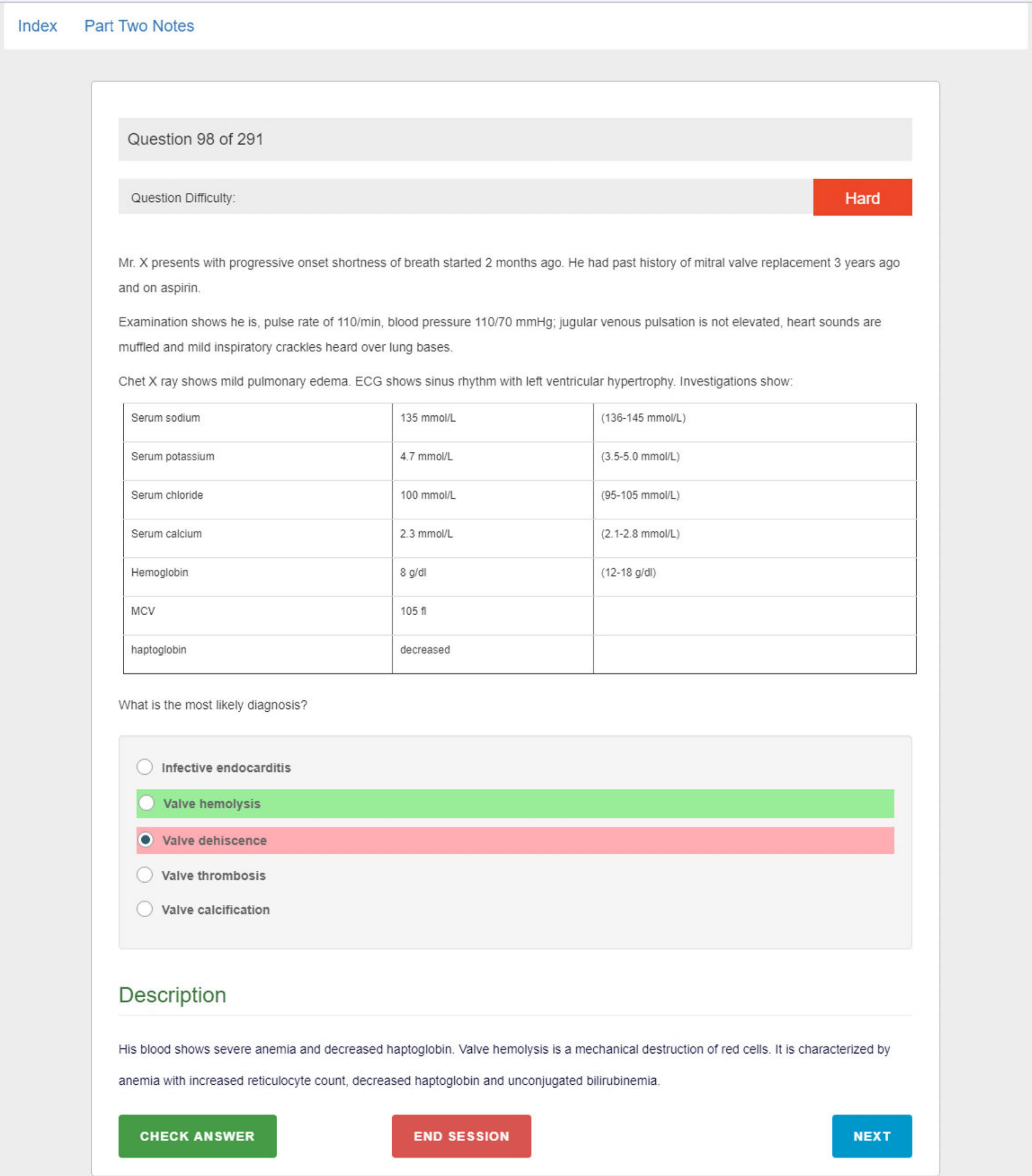
Description

Long QT syndrome is a congenital and acquired disorder characterized by a prolongation of the QT interval (>longer than 0.44 seconds in the right precordial leads) leading to ventricular tachyarrhythmia, which may lead to syncope, cardiac arrest, or sudden death.

The age of the patient and deafness points to congenital causes of long QT syndrome.

Congenital causes include:

- Jervell Lange Nielsen syndrome with deafness
- Romano Ward syndrome with no deafness



Question 98 of 291

Question Difficulty:

Mr. X presents with progressive onset shortness of breath started 2 months ago. He had past history of mitral valve replacement 3 years ago and on aspirin.

Examination shows he is, pulse rate of 110/min, blood pressure 110/70 mmHg; jugular venous pulsation is not elevated, heart sounds are muffled and mild inspiratory crackles heard over lung bases.

Chet X ray shows mild pulmonary edema. ECG shows sinus rhythm with left ventricular hypertrophy. Investigations show:

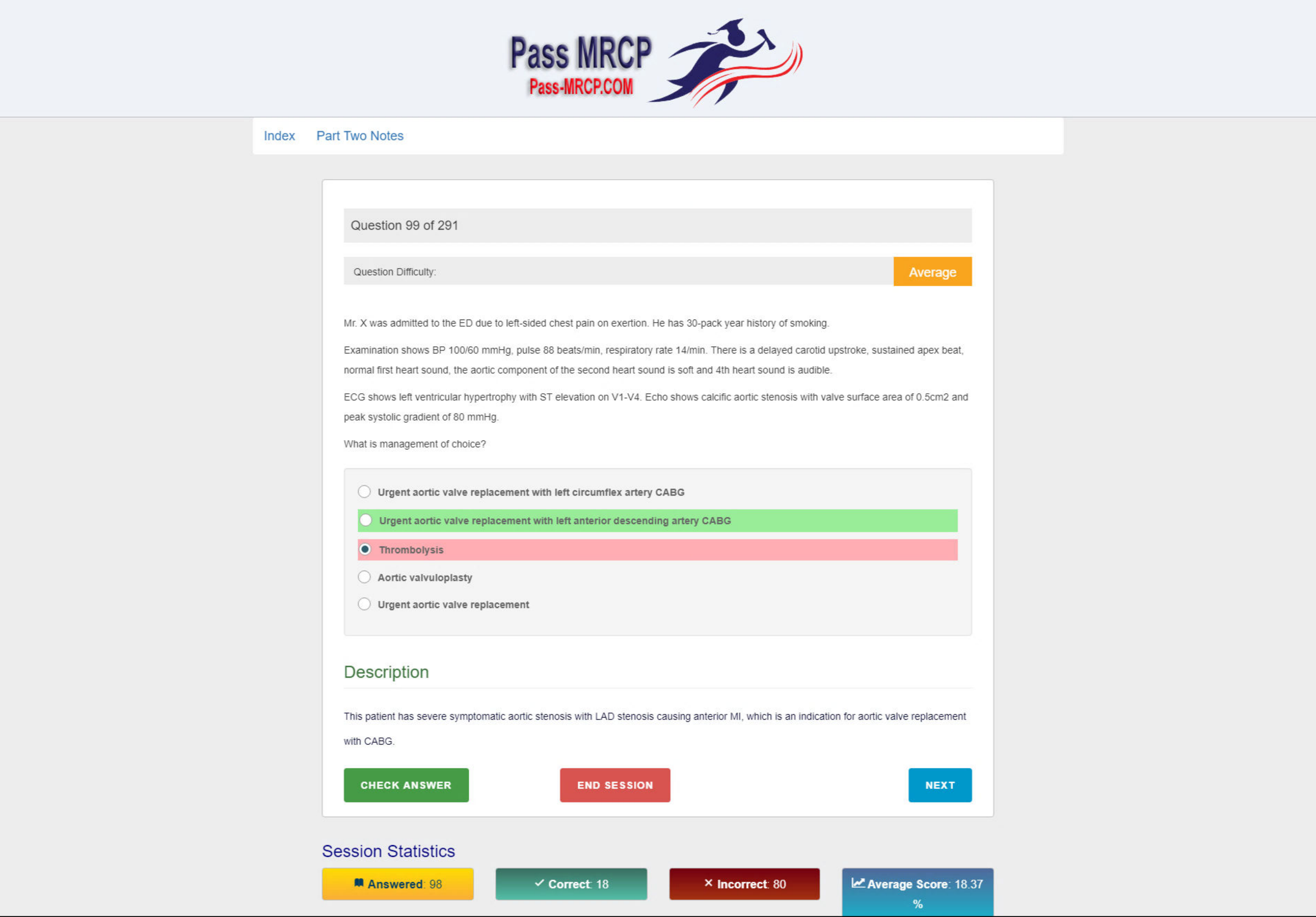
Serum sodium	135 mmol/L	(136-145 mmol/L)
Serum potassium	4.7 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	100 mmol/L	(95-105 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)
Hemoglobin	8 g/dl	(12-18 g/dl)
MCV	105 fl	
haptoglobin	decreased	

What is the most likely diagnosis?

○ **Infective endocarditis**
○ **Valve hemolysis**
● **Valve dehiscence**
○ **Valve thrombosis**
○ **Valve calcification**

Description

His blood shows severe anemia and decreased haptoglobin. Valve hemolysis is a mechanical destruction of red cells. It is characterized by anemia with increased reticulocyte count, decreased haptoglobin and unconjugated bilirubinemia.



Question 99 of 291

Question Difficulty: Average

Mr. X was admitted to the ED due to left-sided chest pain on exertion. He has 30-pack year history of smoking.

Examination shows BP 100/60 mmHg, pulse 88 beats/min, respiratory rate 14/min. There is a delayed carotid upstroke, sustained apex beat, normal first heart sound, the aortic component of the second heart sound is soft and 4th heart sound is audible.

ECG shows left ventricular hypertrophy with ST elevation on V1-V4. Echo shows calcific aortic stenosis with valve surface area of 0.5cm2 and peak systolic gradient of 80 mmHg.

What is management of choice?

- ○ **Urgent aortic valve replacement with left circumflex artery CABG**
- ○ **Urgent aortic valve replacement with left anterior descending artery CABG**
- ● **Thrombolysis**
- ○ **Aortic valvuloplasty**
- ○ **Urgent aortic valve replacement**

Description

This patient has severe symptomatic aortic stenosis with LAD stenosis causing anterior MI, which is an indication for aortic valve replacement with CABG.

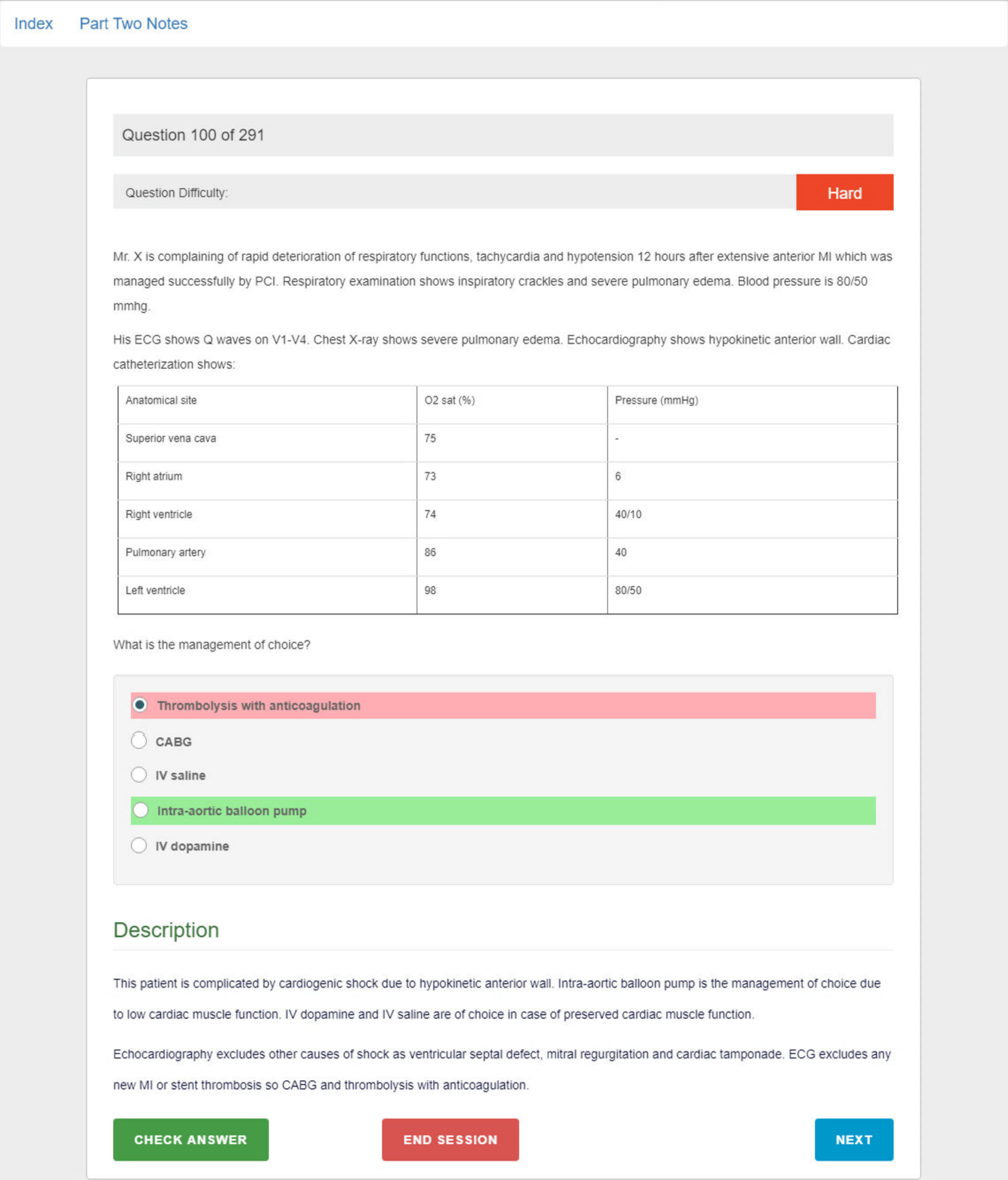
Session Statistics

Answered: 98

✓ **Correct**: 18

✕ **Incorrect**: 80

Average Score: 18.37 %



Question 100 of 291

Question Difficulty: **Hard**

Mr. X is complaining of rapid deterioration of respiratory functions, tachycardia and hypotension 12 hours after extensive anterior MI which was managed successfully by PCI. Respiratory examination shows inspiratory crackles and severe pulmonary edema. Blood pressure is 80/50 mmhg.

His ECG shows Q waves on V1-V4. Chest X-ray shows severe pulmonary edema. Echocardiography shows hypokinetic anterior wall. Cardiac catheterization shows:

Anatomical site	O2 sat (%)	Pressure (mmHg)
Superior vena cava	75	-
Right atrium	73	6
Right ventricle	74	40/10
Pulmonary artery	86	40
Left ventricle	98	80/50

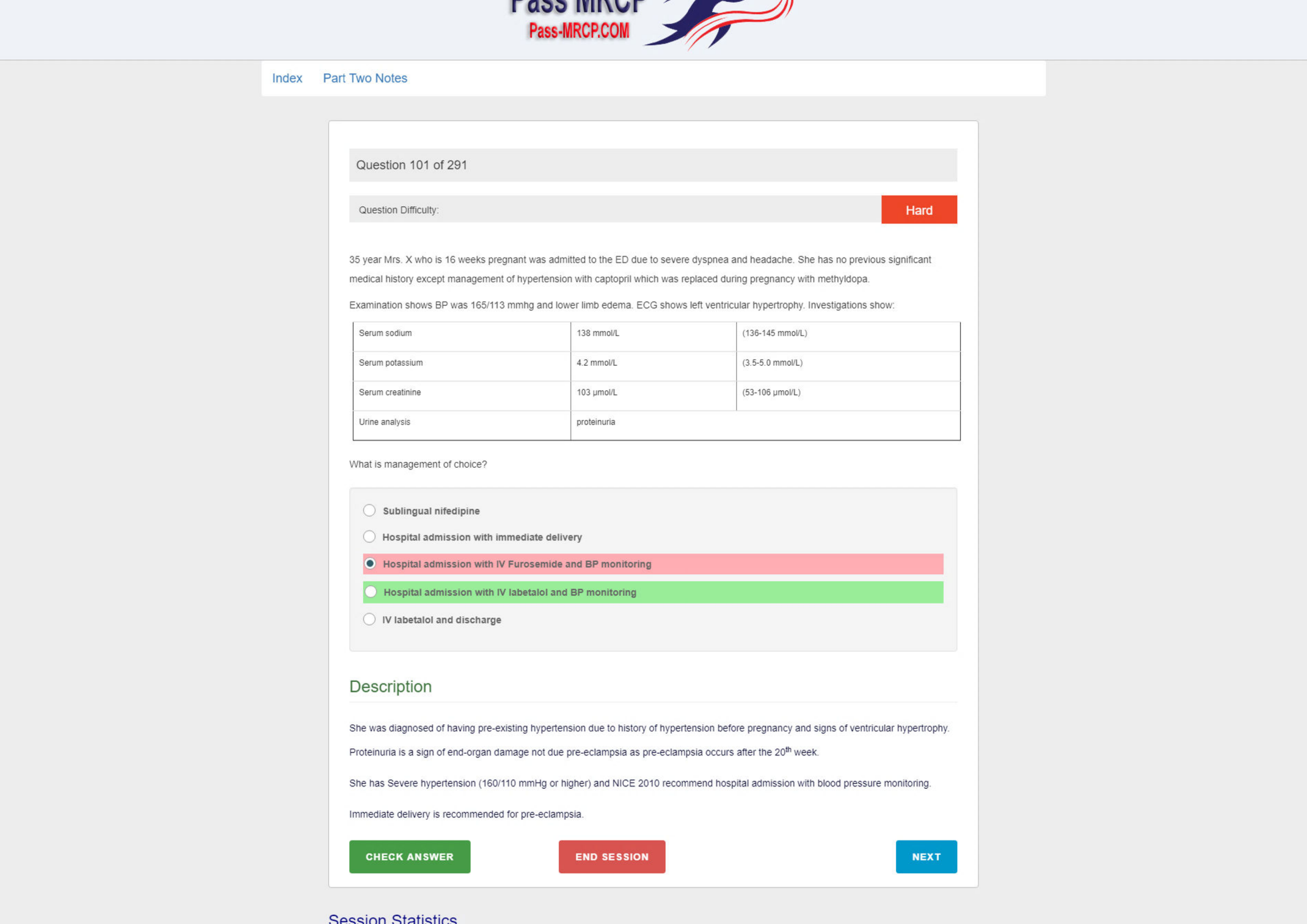
What is the management of choice?

- ● **Thrombolysis with anticoagulation**
- ○ **CABG**
- ○ **IV saline**
- ○ **Intra-aortic balloon pump**
- ○ **IV dopamine**

Description

This patient is complicated by cardiogenic shock due to hypokinetic anterior wall. Intra-aortic balloon pump is the management of choice due to low cardiac muscle function. IV dopamine and IV saline are of choice in case of preserved cardiac muscle function.

Echocardiography excludes other causes of shock as ventricular septal defect, mitral regurgitation and cardiac tamponade. ECG excludes any new MI or stent thrombosis so CABG and thrombolysis with anticoagulation.



Question 101 of 291

Question Difficulty: **Hard**

35 year Mrs. X who is 16 weeks pregnant was admitted to the ED due to severe dyspnea and headache. She has no previous significant medical history except management of hypertension with captopril which was replaced during pregnancy with methyldopa.

Examination shows BP was 165/113 mmhg and lower limb edema. ECG shows left ventricular hypertrophy. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	103 µmol/L	(53-106 µmol/L)
Urine analysis	proteinuria	

What is management of choice?

- ○ **Sublingual nifedipine**
- ○ **Hospital admission with immediate delivery**
- ● **Hospital admission with IV Furosemide and BP monitoring**
- ○ **Hospital admission with IV labetalol and BP monitoring**
- ○ **IV labetalol and discharge**

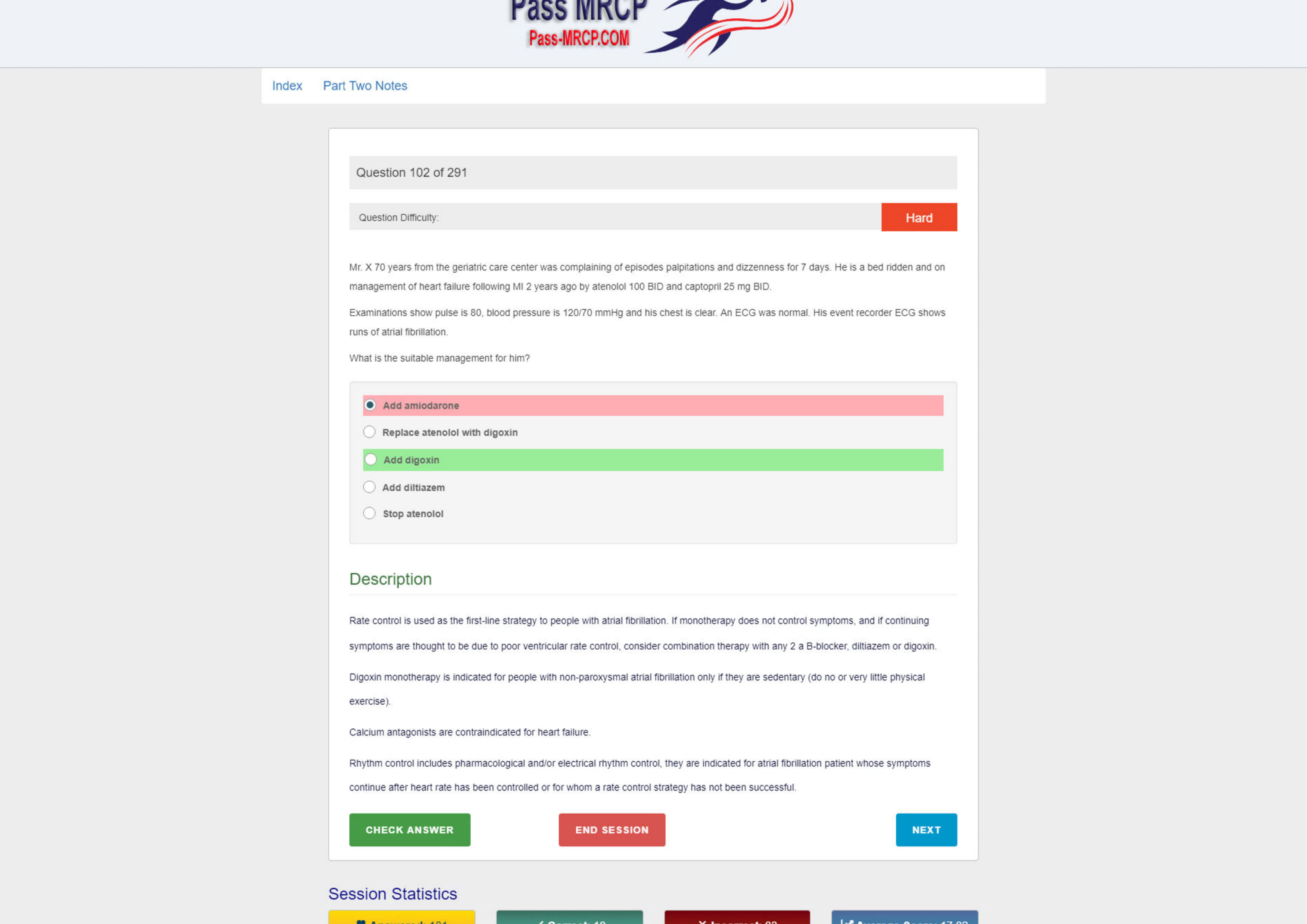
Description

She was diagnosed of having pre-existing hypertension due to history of hypertension before pregnancy and signs of ventricular hypertrophy.

Proteinuria is a sign of end-organ damage not due pre-eclampsia as pre-eclampsia occurs after the 20th week.

She has Severe hypertension (160/110 mmHg or higher) and NICE 2010 recommend hospital admission with blood pressure monitoring.

Immediate delivery is recommended for pre-eclampsia.



Question 102 of 291

Question Difficulty: **Hard**

Mr. X 70 years from the geriatric care center was complaining of episodes palpitations and dizzeness for 7 days. He is a bed ridden and on management of heart failure following MI 2 years ago by atenolol 100 BID and captopril 25 mg BID.

Examinations show pulse is 80, blood pressure is 120/70 mmHg and his chest is clear. An ECG was normal. His event recorder ECG shows runs of atrial fibrillation.

What is the suitable management for him?

- ● **Add amiodarone**
- ○ **Replace atenolol with digoxin**
- ○ **Add digoxin**
- ○ **Add diltiazem**
- ○ **Stop atenolol**

Description

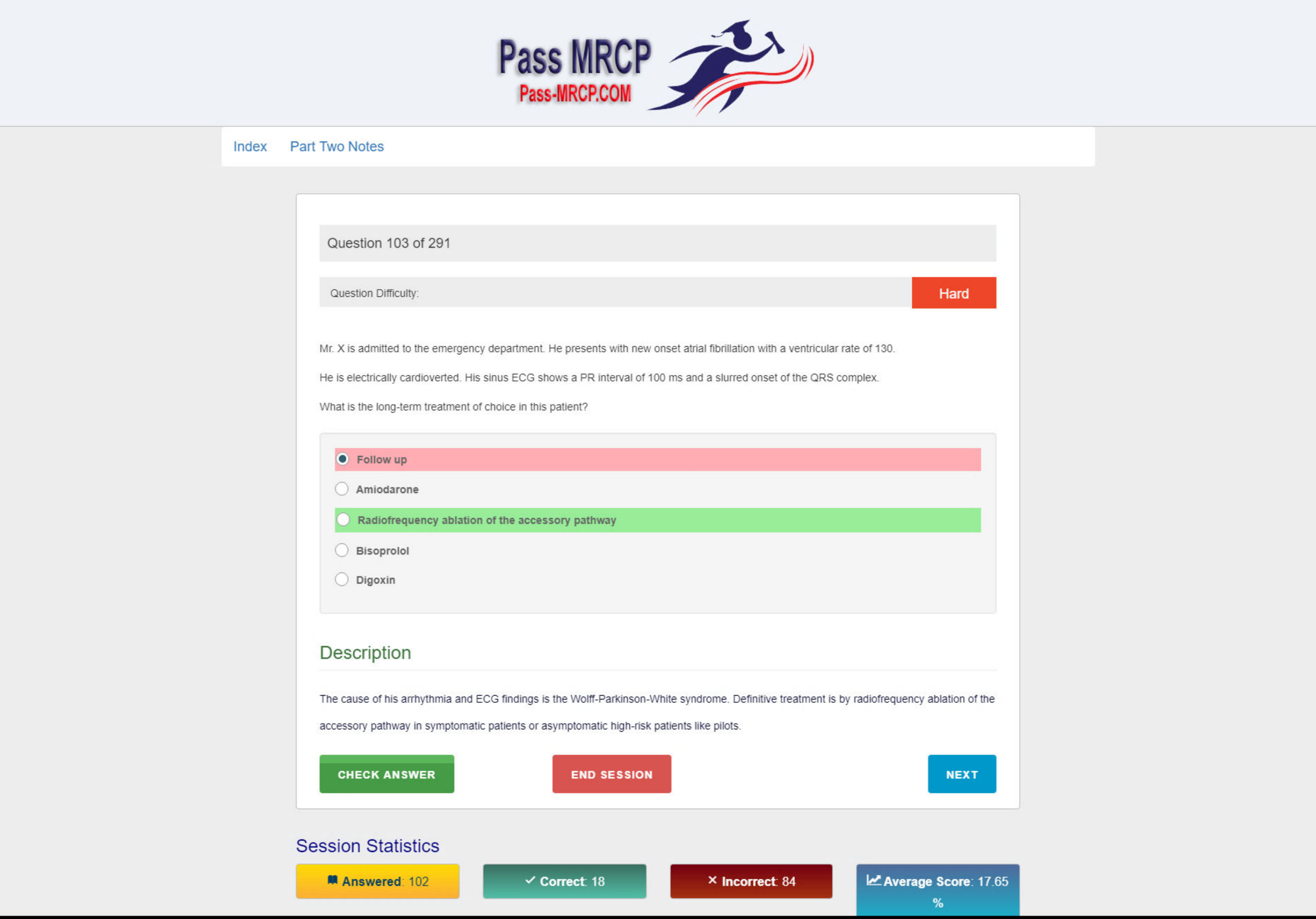
Rate control is used as the first-line strategy to people with atrial fibrillation. If monotherapy does not control symptoms, and if continuing symptoms are thought to be due to poor ventricular rate control, consider combination therapy with any 2 a B-blocker, diltiazem or digoxin.

Digoxin monotherapy is indicated for people with non-paroxysmal atrial fibrillation only if they are sedentary (do no or very little physical exercise).

Calcium antagonists are contraindicated for heart failure.

Rhythm control includes pharmacological and/or electrical rhythm control, they are indicated for atrial fibrillation patient whose symptoms continue after heart rate has been controlled or for whom a rate control strategy has not been successful.

Session Statistics



Question 103 of 291

Question Difficulty: Hard

Mr. X is admitted to the emergency department. He presents with new onset atrial fibrillation with a ventricular rate of 130.

He is electrically cardioverted. His sinus ECG shows a PR interval of 100 ms and a slurred onset of the QRS complex.

What is the long-term treatment of choice in this patient?

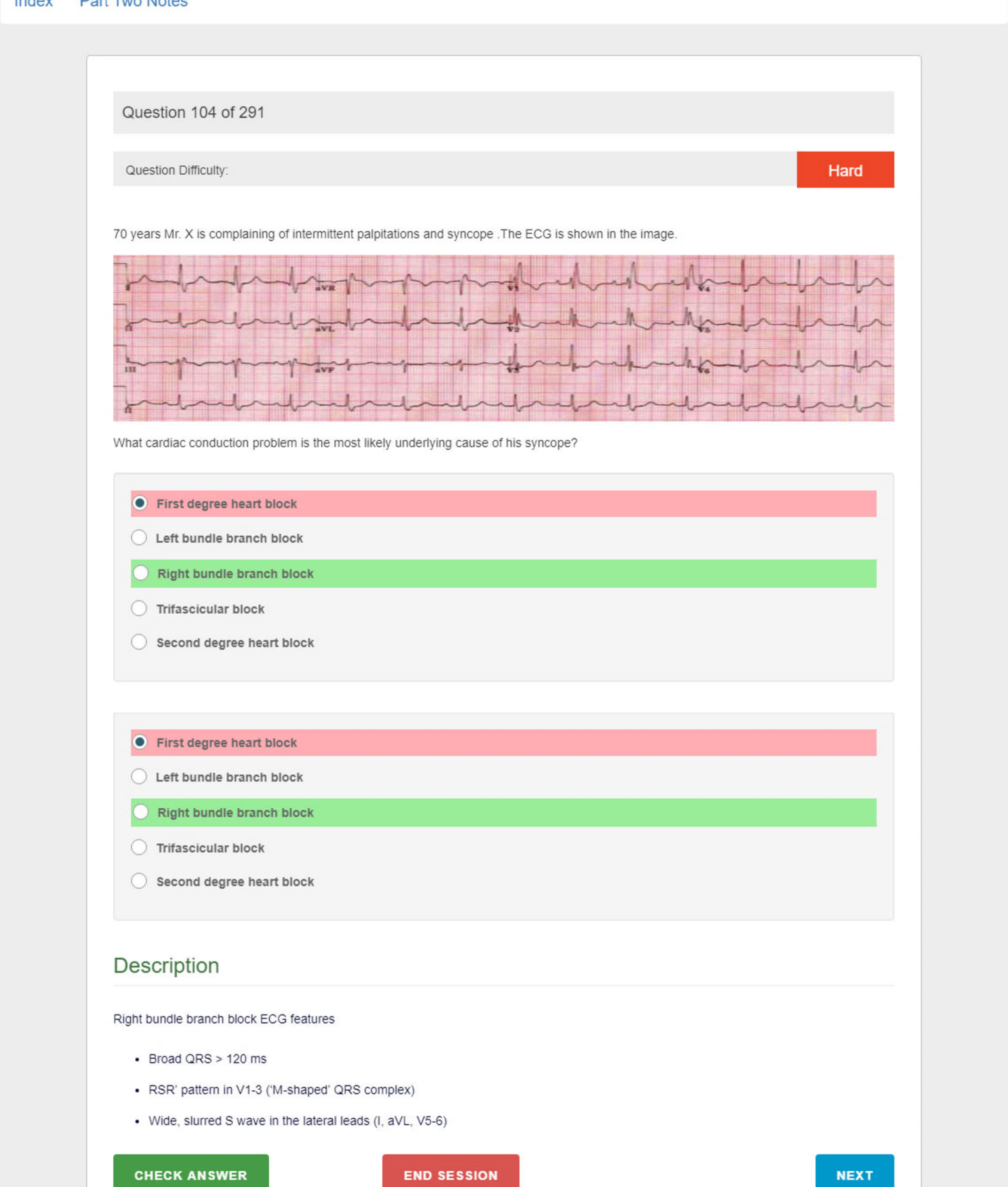
- ● Follow up
- ○ Amiodarone
- ○ Radiofrequency ablation of the accessory pathway
- ○ Bisoprolol
- ○ Digoxin

Description

The cause of his arrhythmia and ECG findings is the Wolff-Parkinson-White syndrome. Definitive treatment is by radiofrequency ablation of the accessory pathway in symptomatic patients or asymptomatic high-risk patients like pilots.

Session Statistics

Answered: 102
Correct: 18
Incorrect: 84
Average Score: 17.65 %



Question 104 of 291

Question Difficulty: Hard

70 years Mr. X is complaining of intermittent palpitations and syncope .The ECG is shown in the image.

What cardiac conduction problem is the most likely underlying cause of his syncope?

- ● First degree heart block
- ○ Left bundle branch block
- ○ Right bundle branch block
- ○ Trifascicular block
- ○ Second degree heart block

- ● First degree heart block
- ○ Left bundle branch block
- ○ Right bundle branch block
- ○ Trifascicular block
- ○ Second degree heart block

Description

Right bundle branch block ECG features

- Broad QRS > 120 ms
- RSR' pattern in V1-3 ('M-shaped' QRS complex)
- Wide, slurred S wave in the lateral leads (I, aVL, V5-6)

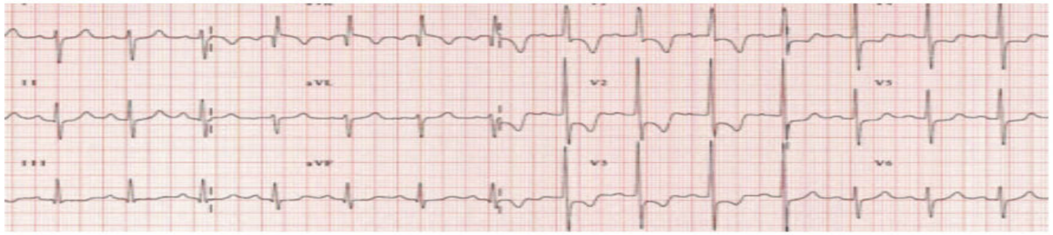
Question 105 of 291

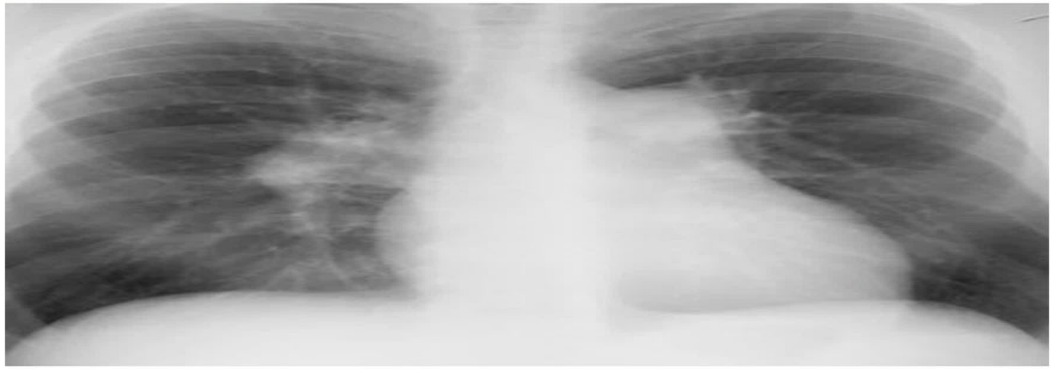
Question Difficulty: **Hard**

38 years Mrs. X is complaining of exertional breathlessness which is becoming progressively worse over the past year, intermittent episodes of chest pain on exertion and fainted on a couple of occasions in the last month.

There is no history of wheezing and she has had no benefit from a trial of salbutamol inhalers.

Examination shows blood pressure of 135/85 mmHg with a heart rate of 90 beats/min. The jugular venous pressure is raised with giant v waves and there is a left parasternal heave. ECG and CXR are shown in the image.





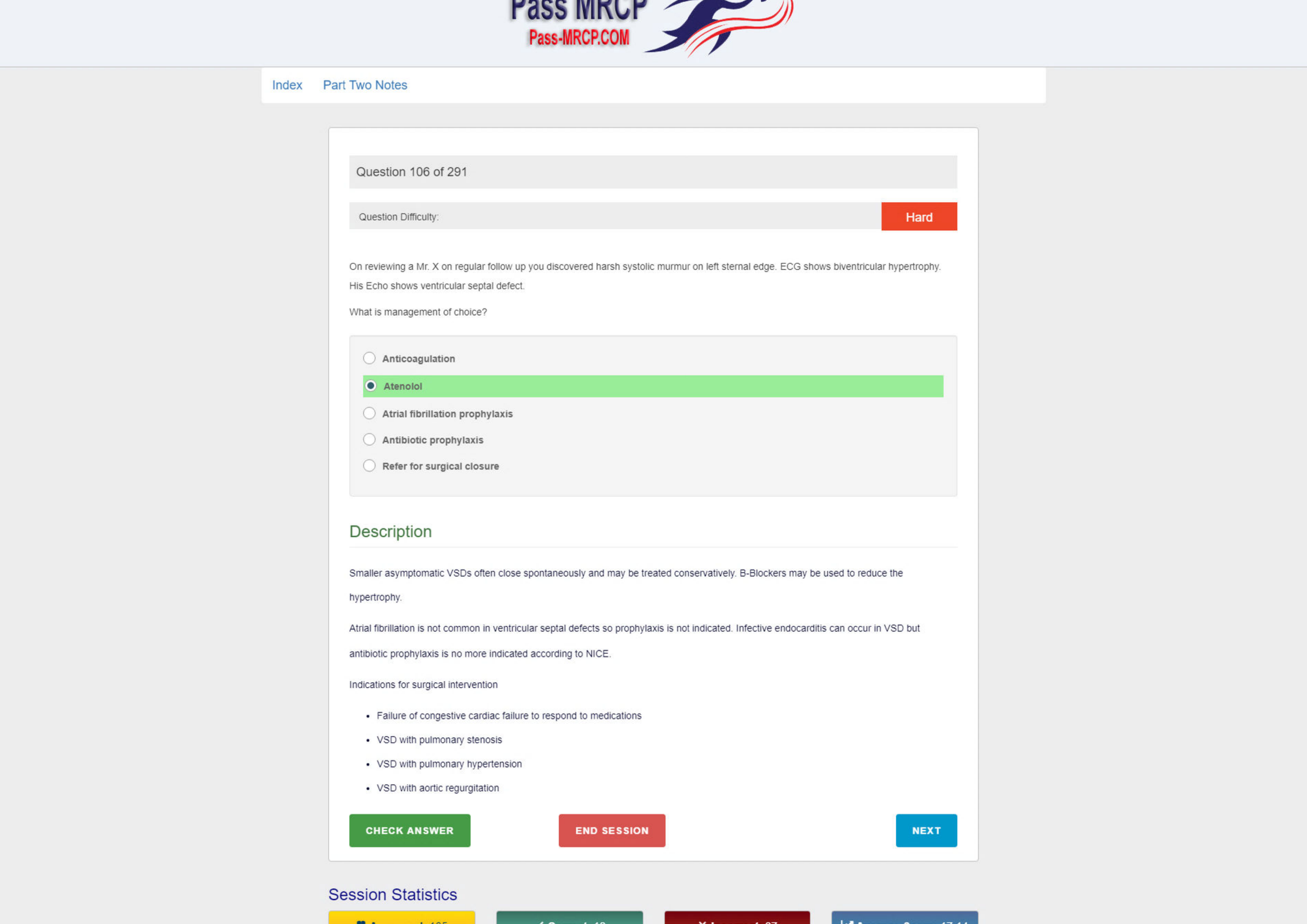
What is the most likely diagnosis?

- ○ **Pulmonary hypertension**
- ○ **Acute pulmonary embolism**
- ○ **Hypertrophic obstructive cardiomyopathy**
- ● **Arrhythmogenic right ventricular dysplasia**
- ○ **Pulmonary fibrosis**

Description

These signs and symptoms are typical picture of primary pulmonary hypertension as it mostly women in 3rd- 4th decade.

CXR shows prominent pulmonary arteries. ECG shows dominant R waves with strain pattern (ST segment depression and T wave inversion) in right precordial leads and right axis deviation due to right sided heart failure.



Question 106 of 291

Question Difficulty: **Hard**

On reviewing a Mr. X on regular follow up you discovered harsh systolic murmur on left sternal edge. ECG shows biventricular hypertrophy. His Echo shows ventricular septal defect.

What is management of choice?

○ **Anticoagulation**

● **Atenolol**

○ **Atrial fibrillation prophylaxis**

○ **Antibiotic prophylaxis**

○ **Refer for surgical closure**

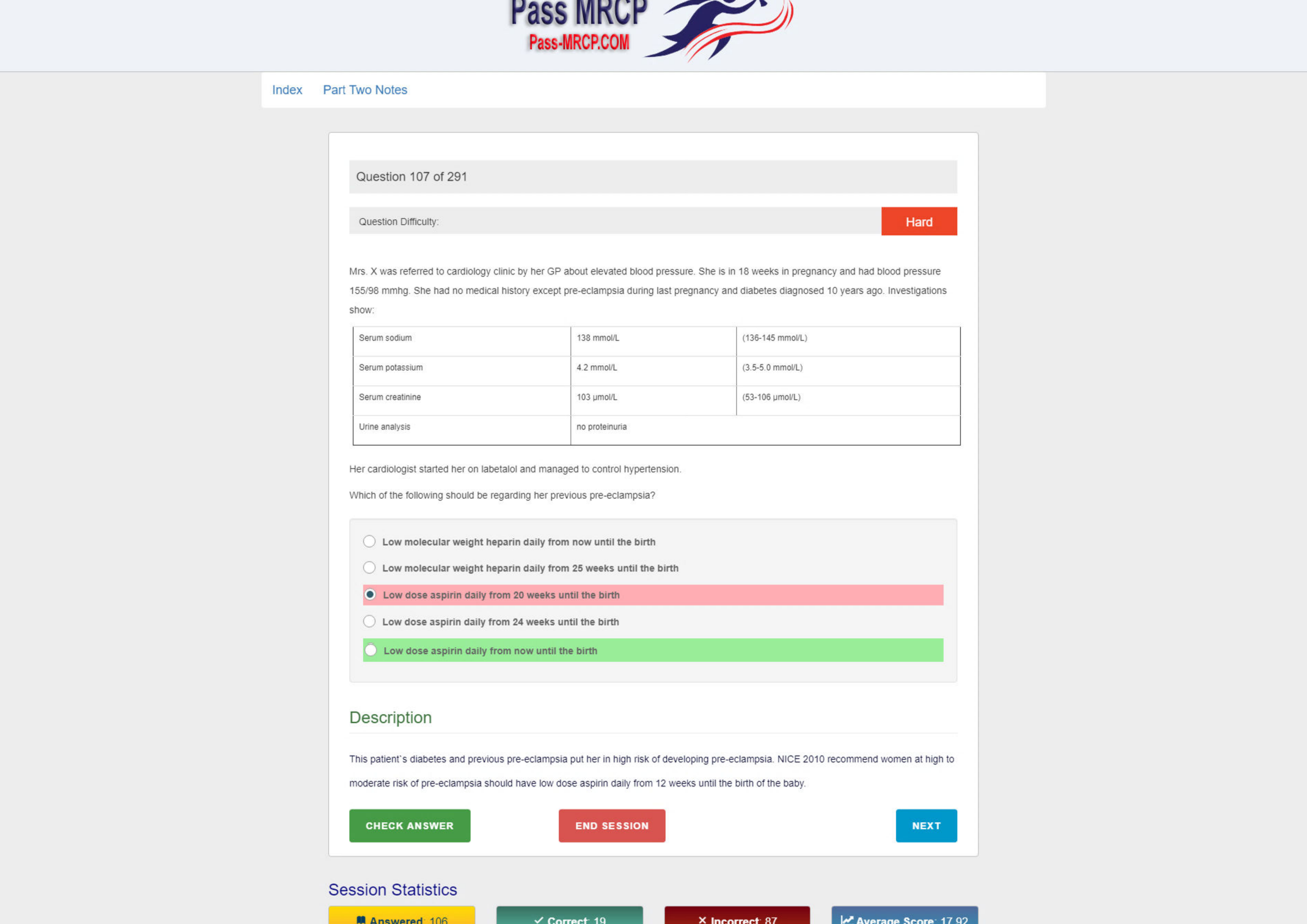
Description

Smaller asymptomatic VSDs often close spontaneously and may be treated conservatively. B-Blockers may be used to reduce the hypertrophy.

Atrial fibrillation is not common in ventricular septal defects so prophylaxis is not indicated. Infective endocarditis can occur in VSD but antibiotic prophylaxis is no more indicated according to NICE.

Indications for surgical intervention

- Failure of congestive cardiac failure to respond to medications
- VSD with pulmonary stenosis
- VSD with pulmonary hypertension
- VSD with aortic regurgitation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Index
Part Two Notes

Question 107 of 291

Question Difficulty: Hard

Mrs. X was referred to cardiology clinic by her GP about elevated blood pressure. She is in 18 weeks in pregnancy and had blood pressure 155/98 mmhg. She had no medical history except pre-eclampsia during last pregnancy and diabetes diagnosed 10 years ago. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	103 µmol/L	(53-106 µmol/L)
Urine analysis	no proteinuria	

Her cardiologist started her on labetalol and managed to control hypertension.

Which of the following should be regarding her previous pre-eclampsia?

- ○ **Low molecular weight heparin daily from now until the birth**
- ○ **Low molecular weight heparin daily from 25 weeks until the birth**
- ● **Low dose aspirin daily from 20 weeks until the birth**
- ○ **Low dose aspirin daily from 24 weeks until the birth**
- ○ **Low dose aspirin daily from now until the birth**

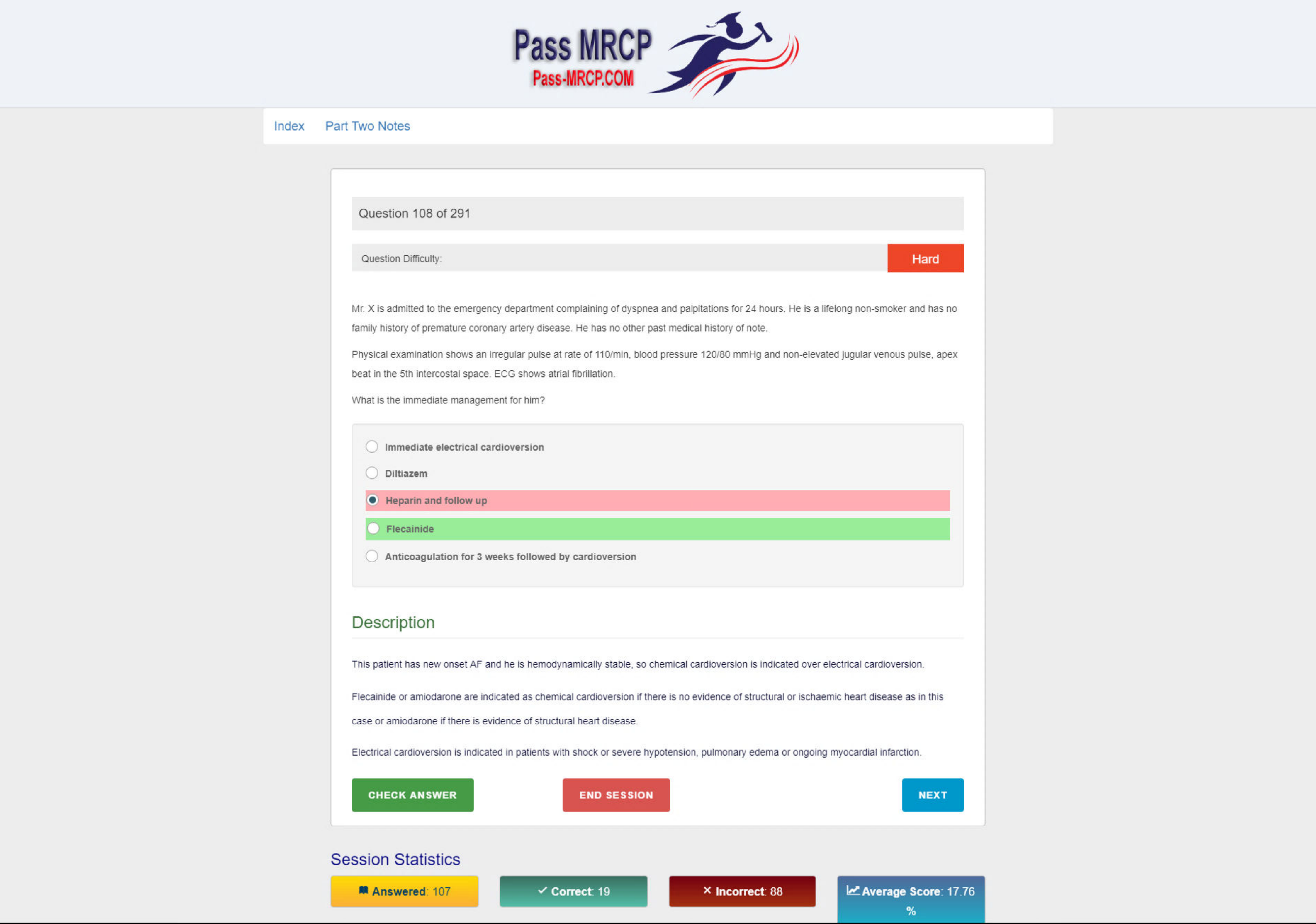
Description

This patient`s diabetes and previous pre-eclampsia put her in high risk of developing pre-eclampsia. NICE 2010 recommend women at high to moderate risk of pre-eclampsia should have low dose aspirin daily from 12 weeks until the birth of the baby.

CHECK ANSWER
END SESSION
NEXT

Session Statistics

Answered: 106
✓ Correct: 19
✕ Incorrect: 87
Average Score: 17.92



Question 108 of 291

Question Difficulty: Hard

Mr. X is admitted to the emergency department complaining of dyspnea and palpitations for 24 hours. He is a lifelong non-smoker and has no family history of premature coronary artery disease. He has no other past medical history of note.

Physical examination shows an irregular pulse at rate of 110/min, blood pressure 120/80 mmHg and non-elevated jugular venous pulse, apex beat in the 5th intercostal space. ECG shows atrial fibrillation.

What is the immediate management for him?

○ **Immediate electrical cardioversion**
○ **Diltiazem**
● **Heparin and follow up**
○ **Flecainide**
○ **Anticoagulation for 3 weeks followed by cardioversion**

Description

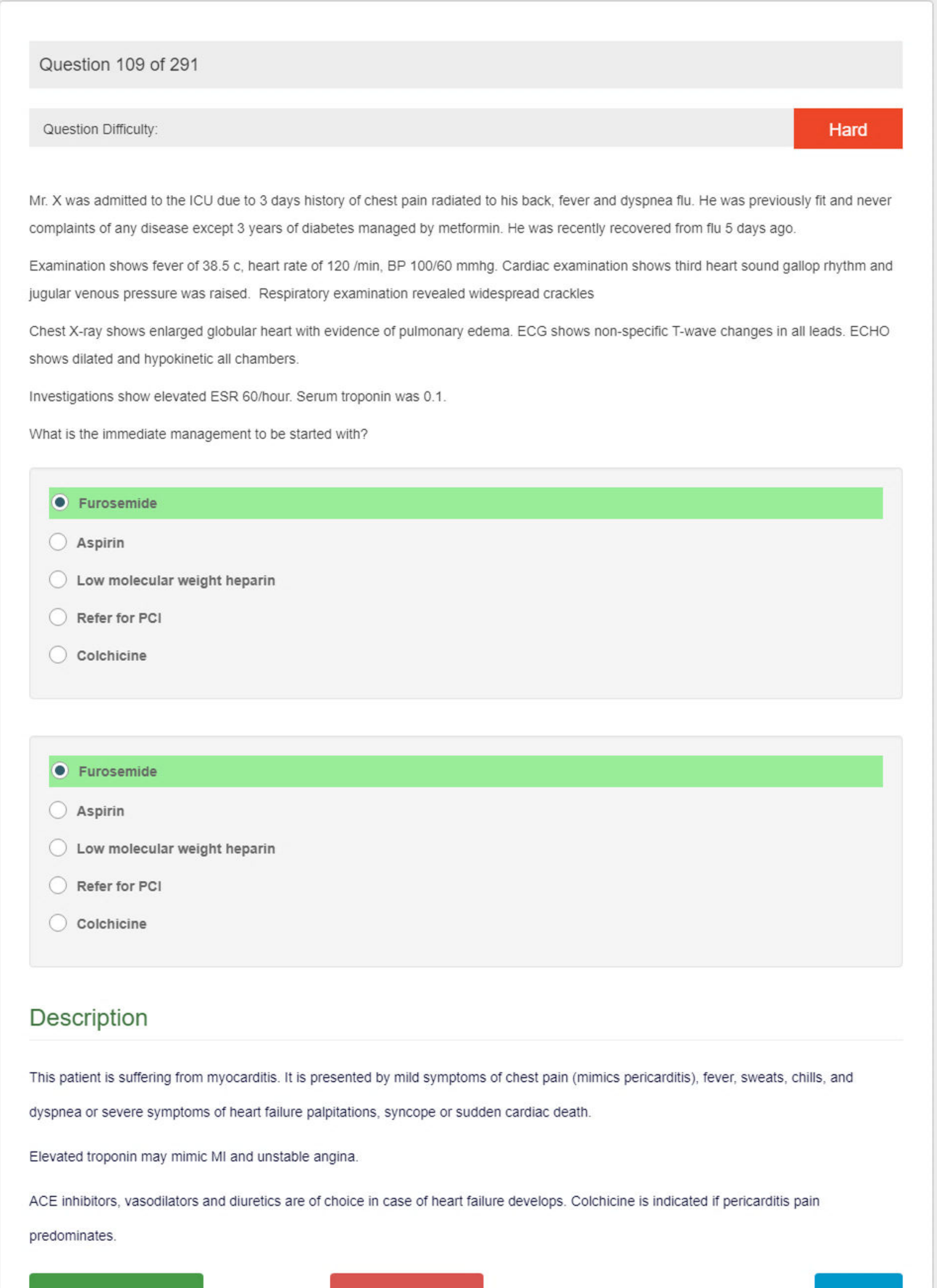
This patient has new onset AF and he is hemodynamically stable, so chemical cardioversion is indicated over electrical cardioversion.

Flecainide or amiodarone are indicated as chemical cardioversion if there is no evidence of structural or ischaemic heart disease as in this case or amiodarone if there is evidence of structural heart disease.

Electrical cardioversion is indicated in patients with shock or severe hypotension, pulmonary edema or ongoing myocardial infarction.

Session Statistics

Answered: 107
✓ Correct: 19
✕ Incorrect: 88
Average Score: 17.76 %



Question 109 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the ICU due to 3 days history of chest pain radiated to his back, fever and dyspnea flu. He was previously fit and never complaints of any disease except 3 years of diabetes managed by metformin. He was recently recovered from flu 5 days ago.

Examination shows fever of 38.5 c, heart rate of 120 /min, BP 100/60 mmhg. Cardiac examination shows third heart sound gallop rhythm and jugular venous pressure was raised. Respiratory examination revealed widespread crackles

Chest X-ray shows enlarged globular heart with evidence of pulmonary edema. ECG shows non-specific T-wave changes in all leads. ECHO shows dilated and hypokinetic all chambers.

Investigations show elevated ESR 60/hour. Serum troponin was 0.1.

What is the immediate management to be started with?

- ● **Furosemide**
- ○ **Aspirin**
- ○ **Low molecular weight heparin**
- ○ **Refer for PCI**
- ○ **Colchicine**

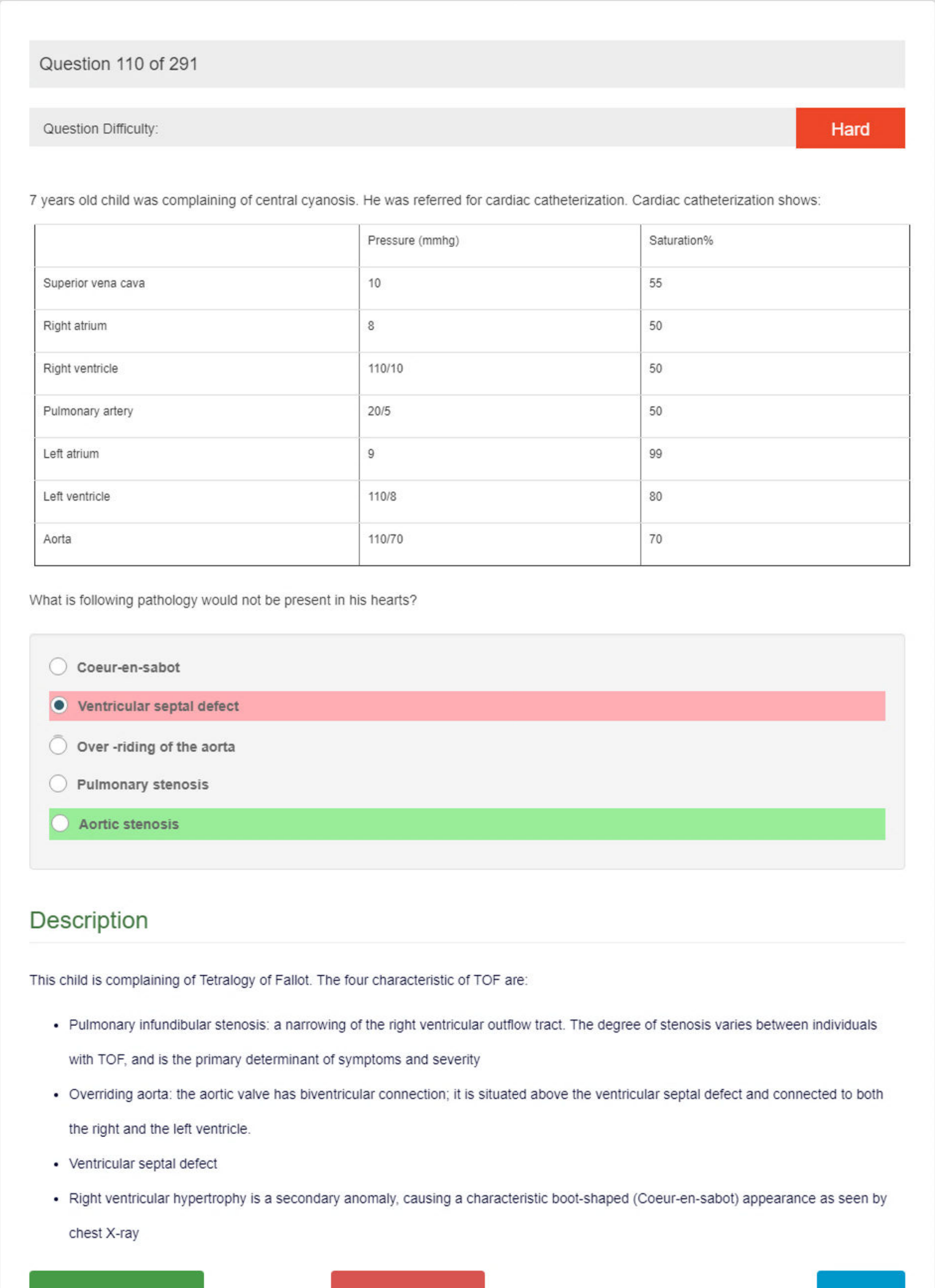
- ● **Furosemide**
- ○ **Aspirin**
- ○ **Low molecular weight heparin**
- ○ **Refer for PCI**
- ○ **Colchicine**

Description

This patient is suffering from myocarditis. It is presented by mild symptoms of chest pain (mimics pericarditis), fever, sweats, chills, and dyspnea or severe symptoms of heart failure palpitations, syncope or sudden cardiac death.

Elevated troponin may mimic MI and unstable angina.

ACE inhibitors, vasodilators and diuretics are of choice in case of heart failure develops. Colchicine is indicated if pericarditis pain predominates.



Question 110 of 291

Question Difficulty: **Hard**

7 years old child was complaining of central cyanosis. He was referred for cardiac catheterization. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	8	50
Right ventricle	110/10	50
Pulmonary artery	20/5	50
Left atrium	9	99
Left ventricle	110/8	80
Aorta	110/70	70

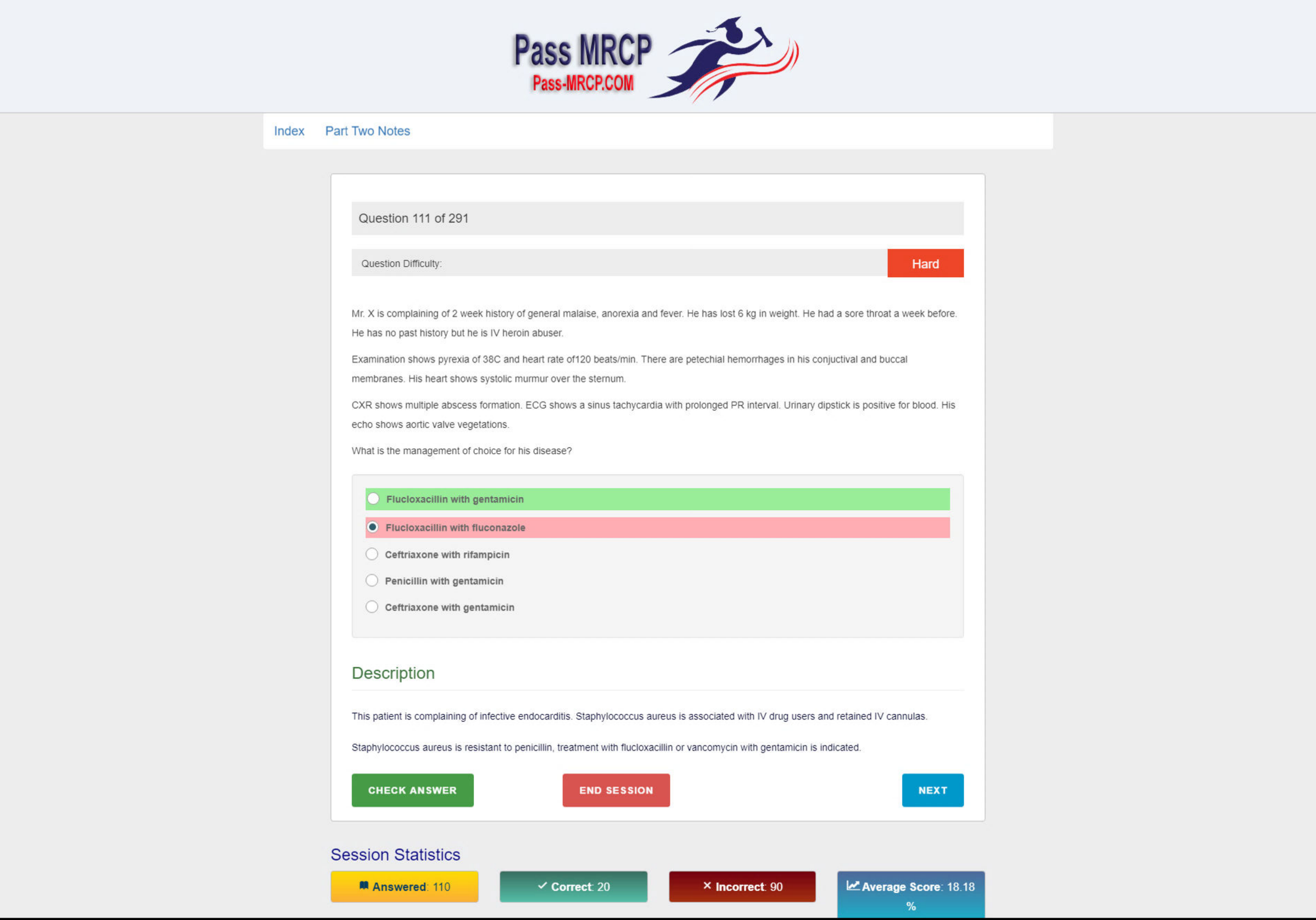
What is following pathology would not be present in his hearts?

○ **Coeur-en-sabot**
● **Ventricular septal defect**
○ **Over -riding of the aorta**
○ **Pulmonary stenosis**
○ **Aortic stenosis**

Description

This child is complaining of Tetralogy of Fallot. The four characteristic of TOF are:

- Pulmonary infundibular stenosis: a narrowing of the right ventricular outflow tract. The degree of stenosis varies between individuals with TOF, and is the primary determinant of symptoms and severity
- Overriding aorta: the aortic valve has biventricular connection; it is situated above the ventricular septal defect and connected to both the right and the left ventricle.
- Ventricular septal defect
- Right ventricular hypertrophy is a secondary anomaly, causing a characteristic boot-shaped (Coeur-en-sabot) appearance as seen by chest X-ray



Question 111 of 291

Question Difficulty: Hard

Mr. X is complaining of 2 week history of general malaise, anorexia and fever. He has lost 6 kg in weight. He had a sore throat a week before. He has no past history but he is IV heroin abuser.

Examination shows pyrexia of 38C and heart rate of120 beats/min. There are petechial hemorrhages in his conjuctival and buccal membranes. His heart shows systolic murmur over the sternum.

CXR shows multiple abscess formation. ECG shows a sinus tachycardia with prolonged PR interval. Urinary dipstick is positive for blood. His echo shows aortic valve vegetations.

What is the management of choice for his disease?

- ○ **Flucloxacillin with gentamicin**
- ● **Flucloxacillin with fluconazole**
- ○ **Ceftriaxone with rifampicin**
- ○ **Penicillin with gentamicin**
- ○ **Ceftriaxone with gentamicin**

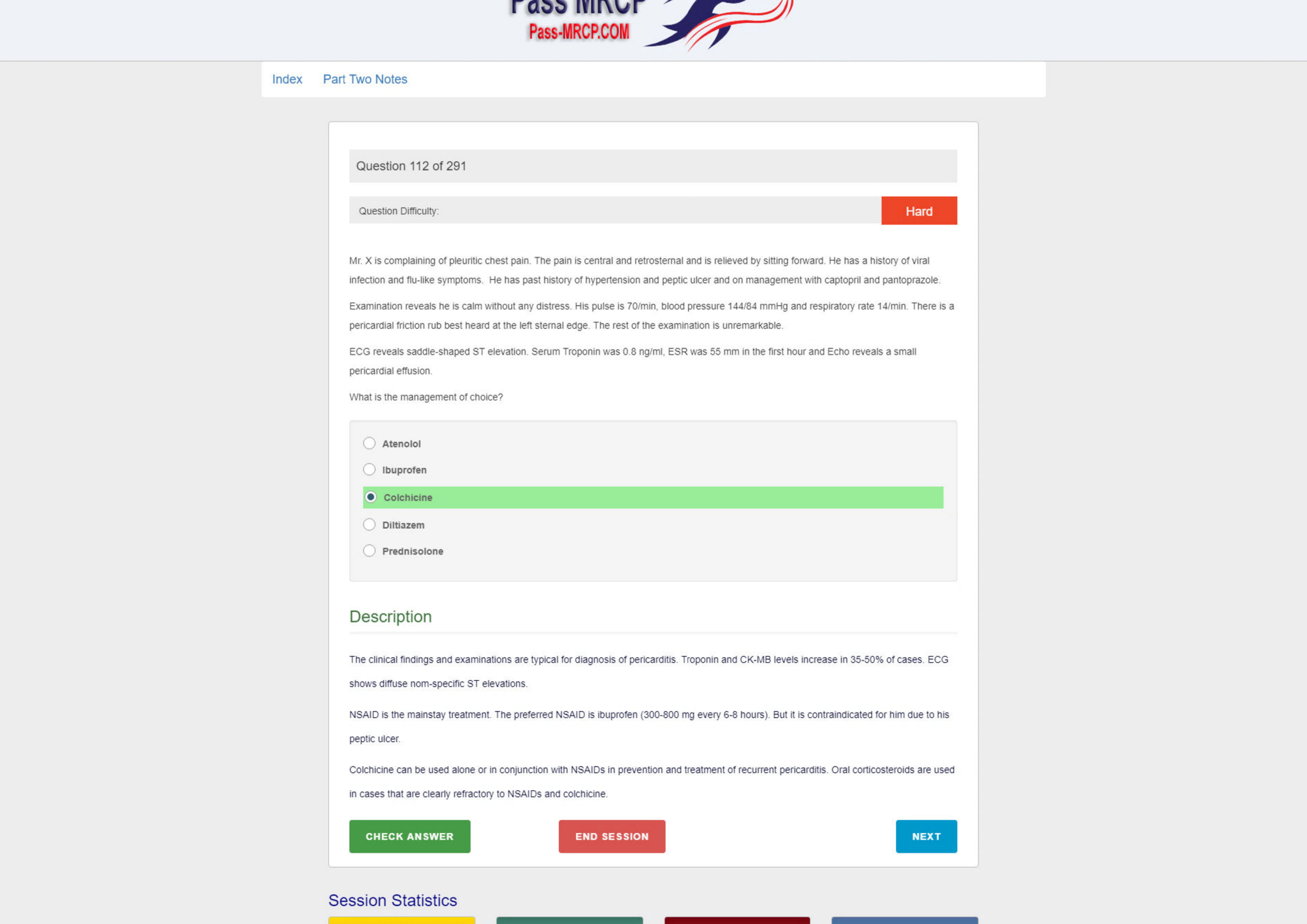
Description

This patient is complaining of infective endocarditis. Staphylococcus aureus is associated with IV drug users and retained IV cannulas.

Staphylococcus aureus is resistant to penicillin, treatment with flucloxacillin or vancomycin with gentamicin is indicated.

Session Statistics

Answered: 110
✓ **Correct**: 20
✕ **Incorrect**: 90
Average Score: 18.18 %



Question 112 of 291

Question Difficulty: Hard

Mr. X is complaining of pleuritic chest pain. The pain is central and retrosternal and is relieved by sitting forward. He has a history of viral infection and flu-like symptoms. He has past history of hypertension and peptic ulcer and on management with captopril and pantoprazole.

Examination reveals he is calm without any distress. His pulse is 70/min, blood pressure 144/84 mmHg and respiratory rate 14/min. There is a pericardial friction rub best heard at the left sternal edge. The rest of the examination is unremarkable.

ECG reveals saddle-shaped ST elevation. Serum Troponin was 0.8 ng/ml, ESR was 55 mm in the first hour and Echo reveals a small pericardial effusion.

What is the management of choice?

- ○ Atenolol
- ○ Ibuprofen
- ● Colchicine
- ○ Diltiazem
- ○ Prednisolone

Description

The clinical findings and examinations are typical for diagnosis of pericarditis. Troponin and CK-MB levels increase in 35-50% of cases. ECG shows diffuse nom-specific ST elevations.

NSAID is the mainstay treatment. The preferred NSAID is ibuprofen (300-800 mg every 6-8 hours). But it is contraindicated for him due to his peptic ulcer.

Colchicine can be used alone or in conjunction with NSAIDs in prevention and treatment of recurrent pericarditis. Oral corticosteroids are used in cases that are clearly refractory to NSAIDs and colchicine.

Session Statistics

Question 113 of 291

Question Difficulty: **Hard**

Mr. X presents with worsening breathlessness. He has no past medical history and had never complained of heart symptoms.

Examination shows he is calm, mildly dyspnoeic, BP 110/70 mmhg and pulse rate 112/min. Auscultation shows pansystolic systolic murmur on left sternal edge with parasternal heave and a displaced apex beat.

ECG shows right and left ventricular hypertrophy. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	8	54
Right ventricle	60/20	80
Pulmonary artery	28/12	82
Left atrium	9	99
Left ventricle	110/8	97
Aorta	110/40	97

What is the most likely diagnosis?

Right ventricle	60/20	80
Pulmonary artery	28/12	82
Left atrium	9	99
Left ventricle	110/8	97
Aorta	110/40	97

What is the most likely diagnosis?

- ○ **Atrial septal defect**
- ○ **Tricuspid regurgitation**
- ● **Patent ductus arteriosus**
- ○ **Ventricular septal defect**
- ○ **Mitral regurgitation**

Description

Cardiac catheterization shows shunting across the ventricles and pansystolic murmur is heard along lower left sternal border with parasternal heave and a displaced apex beat which are diagnostic for VSD.

CHECK ANSWER END SESSION NEXT

Session Statistics

Answered: 112 ✓ **Correct**: 21 × **Incorrect**: 91 **Average Score**: 18.75 %

Question 114 of 291

Question Difficulty: **Hard**

Mr. X presents with progressive shortness of breath of 3 months duration. He has dyspnea on ordinary physical activity at home. He has also noticed swelling of the feet and abdomen and pinkish-purple patches on the cheeks.

Examination shows BP 100/70, heart rate 96/min, and respiratory rate of 20/min. Jugular venous pulse has elevated a wave, bibasilar inspiratory crepitations, diminished first heart sound and widely split second heart sound with loud pulmonary component.

CXR shows straightening of the left heart border and prominent pulmonary arteries and Kerley B lines. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	65
Right atrium	25	65
Right ventricle	40/15	66
Pulmonary artery	42/20	65
PCWP	32	-
Left ventricle	110/12	99
Aorta	110/70	98

What is the most likely diagnosis?

Right atrium	25	65
Right ventricle	40/15	66
Pulmonary artery	42/20	65
PCWP	32	-
Left ventricle	110/12	99
Aorta	110/70	98

What is the most likely diagnosis?

○ **Mitral stenosis**
○ **Atrial septal defect**
○ **Ventricular septal defect**
● **Tricuspid stenosis**
○ **Aortic stenosis**

Description

There is no significant pressure gradient across the aortic or pulmonary valves thereby excluding aortic or pulmonary stenosis. There is no change in saturation from RA to RV, thereby excluding ASD or VSD.

We can, however, see the increase in mean capillary wedge pressure (providing a reflection of left atrial pressure) which is greater than left ventricular diastolic pressure indicating mitral stenosis. There is also an associated moderate elevation in pulmonary pressures.

The pinkish-purple patches on the cheeks are mitral facies. The bifid P wave (P mitral) is a sign of left atrial hypertrophy.

CHECK ANSWER END SESSION NEXT

Session Statistics

Answered: 113 ✓ **Correct**: 21 ✕ **Incorrect**: 92 **Average Score**: 18.58 %

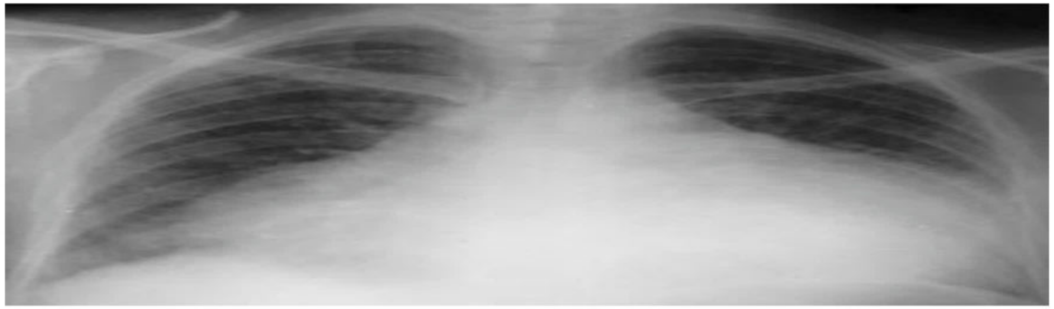
Question 115 of 291

Question Difficulty: **Hard**

Mr. X presents to the clinic complaining of shortness of breath, feeling faint and gradually increasing ankle swelling. He had no past medical history except he received chemotherapy and radiotherapy for previous Hodgkin lymphoma 20 years ago.

Examination shows he looks short of breath; BP is 80/50 mmHg with a decrease of 20mmHg on inspiration. Auscultations shows muffled heart sounds, elevated JVP and paradoxical pulse.

CXR is shown in the image. ECG shows low voltage sinus tachycardia.



What is the most likely diagnosis?

- ○ **Cardiac tamponade**
- ● **Dilated cardiomyopathy**
- ○ **Myocarditis**
- ○ **Constrictive pericarditis**
- ○ **Pericardial fibrosis**

Description

This patient shows Beck triad of tamponade diagnosis which are hypotension, jugular-venous distension and muffled heart sounds. Chest x-ray shows massive cardiomegaly.

Urgent pericardiocentesis is the definite management.

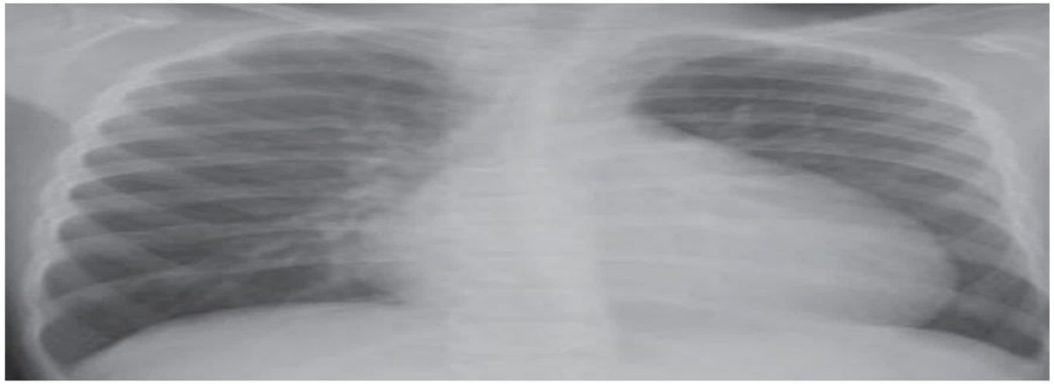
CHECK ANSWER   **END SESSION**   **NEXT**

Question 116 of 291

Question Difficulty: **Hard**

Mr. X was referred from chest hospital complaining of chest discomfort and dyspnea. He was admitted to the chest hospital due to acute tuberculosis infection and on management with traditional drugs.

Examination shows he has mild dyspnea; BP is 110/70 mmHg. Auscultation shows muffled heart sounds and elevated JVP was not raised. CXR is shown in the image. ECG shows low voltage sinus tachycardia.



Serum electrolytes show:

Serum sodium	136 mmol/L	(136-145 mmol/L)
Serum potassium	4.5 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	100 mmol/L	(95-105 mmol/L)
Serum creatinine	102 µmol/L	(53-106 µmol/L)

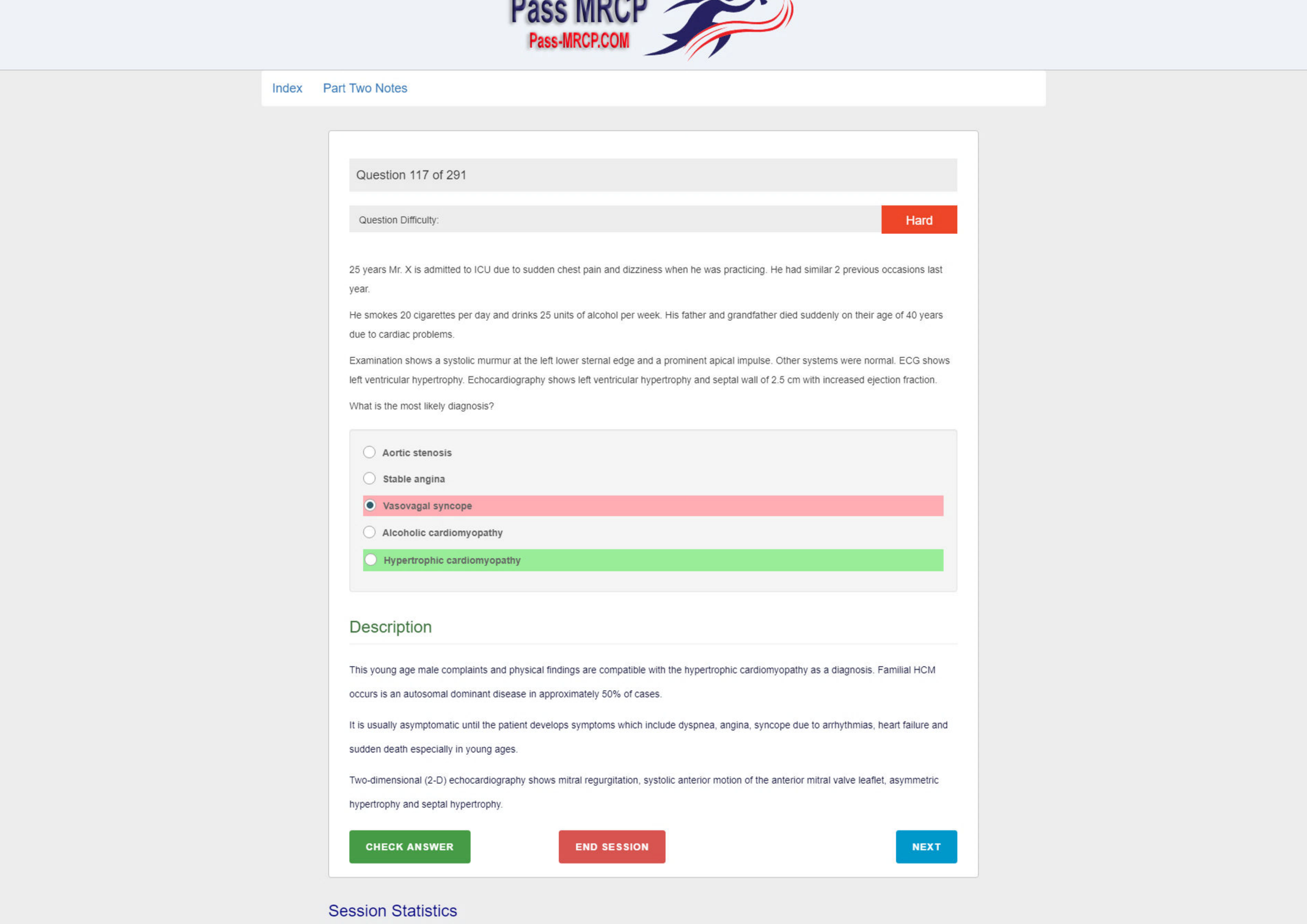
What is the management of choice?

- ○ **Cardiac catheterization**
- ○ **Intravenous furosemide**
- ○ **Follow up with repeated echo**
- ● **Sodium nitroprusside**
- ○ **Urgent pericardiocentesis**

Description

This patient is complaining pericardial effusion not cardiac tamponade as his dyspnea is not severe and not in shock.

Urgent pericardiocentesis is not indicated as the effusion is not massive and only should be followed up.



Question 117 of 291

Question Difficulty: Hard

25 years Mr. X is admitted to ICU due to sudden chest pain and dizziness when he was practicing. He had similar 2 previous occasions last year.

He smokes 20 cigarettes per day and drinks 25 units of alcohol per week. His father and grandfather died suddenly on their age of 40 years due to cardiac problems.

Examination shows a systolic murmur at the left lower sternal edge and a prominent apical impulse. Other systems were normal. ECG shows left ventricular hypertrophy. Echocardiography shows left ventricular hypertrophy and septal wall of 2.5 cm with increased ejection fraction.

What is the most likely diagnosis?

- ○ **Aortic stenosis**
- ○ **Stable angina**
- ● **Vasovagal syncope**
- ○ **Alcoholic cardiomyopathy**
- ○ **Hypertrophic cardiomyopathy**

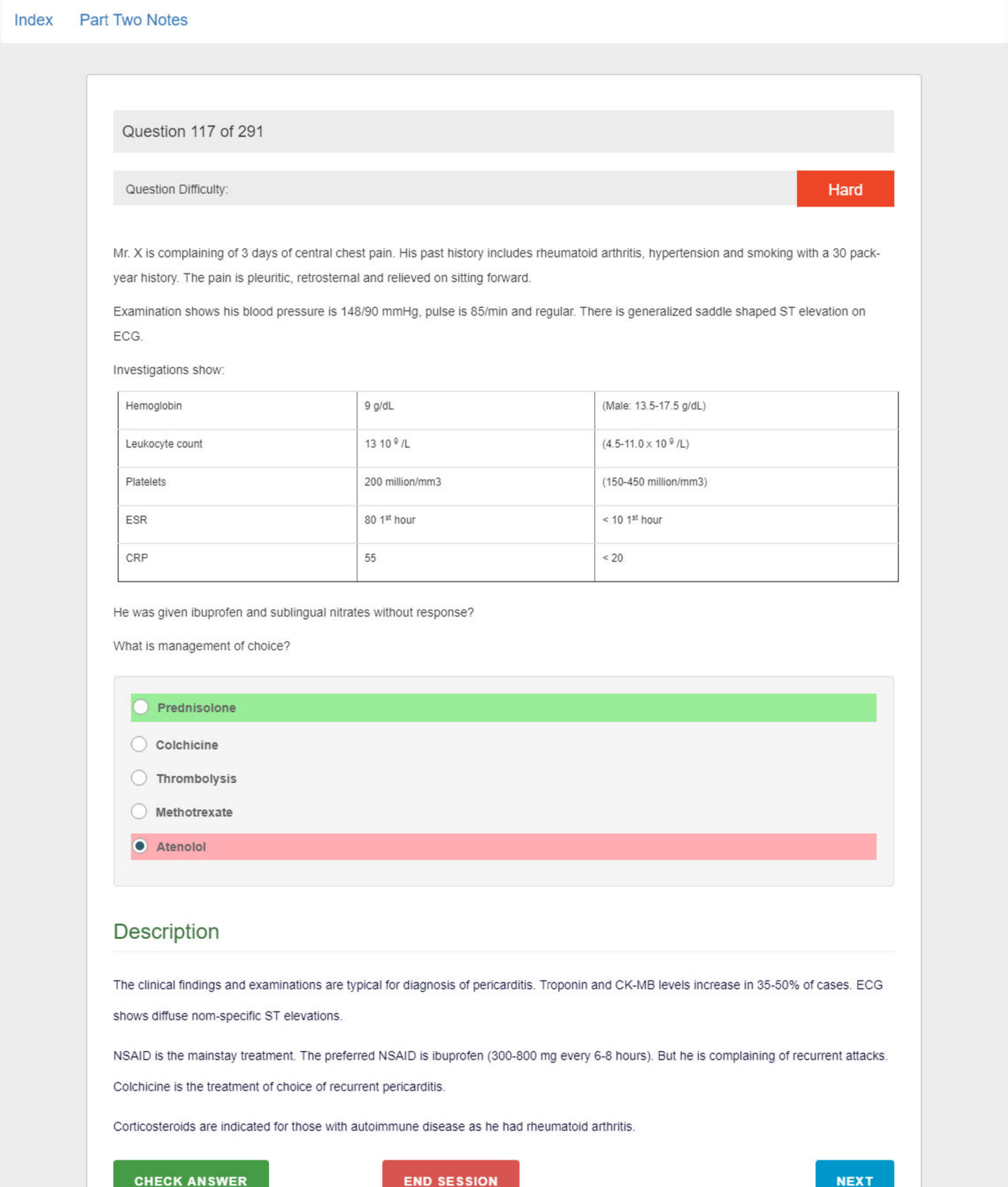
Description

This young age male complaints and physical findings are compatible with the hypertrophic cardiomyopathy as a diagnosis. Familial HCM occurs is an autosomal dominant disease in approximately 50% of cases.

It is usually asymptomatic until the patient develops symptoms which include dyspnea, angina, syncope due to arrhythmias, heart failure and sudden death especially in young ages.

Two-dimensional (2-D) echocardiography shows mitral regurgitation, systolic anterior motion of the anterior mitral valve leaflet, asymmetric hypertrophy and septal hypertrophy.

Session Statistics



Question 117 of 291

Question Difficulty: Hard

Mr. X is complaining of 3 days of central chest pain. His past history includes rheumatoid arthritis, hypertension and smoking with a 30 pack-year history. The pain is pleuritic, retrosternal and relieved on sitting forward.

Examination shows his blood pressure is 148/90 mmHg, pulse is 85/min and regular. There is generalized saddle shaped ST elevation on ECG.

Investigations show:

Hemoglobin	9 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	13 10^{9} /L	(4.5-11.0 x 10^{9} /L)
Platelets	200 million/mm3	(150-450 million/mm3)
ESR	80 1st hour	< 10 1st hour
CRP	55	< 20

He was given ibuprofen and sublingual nitrates without response?

What is management of choice?

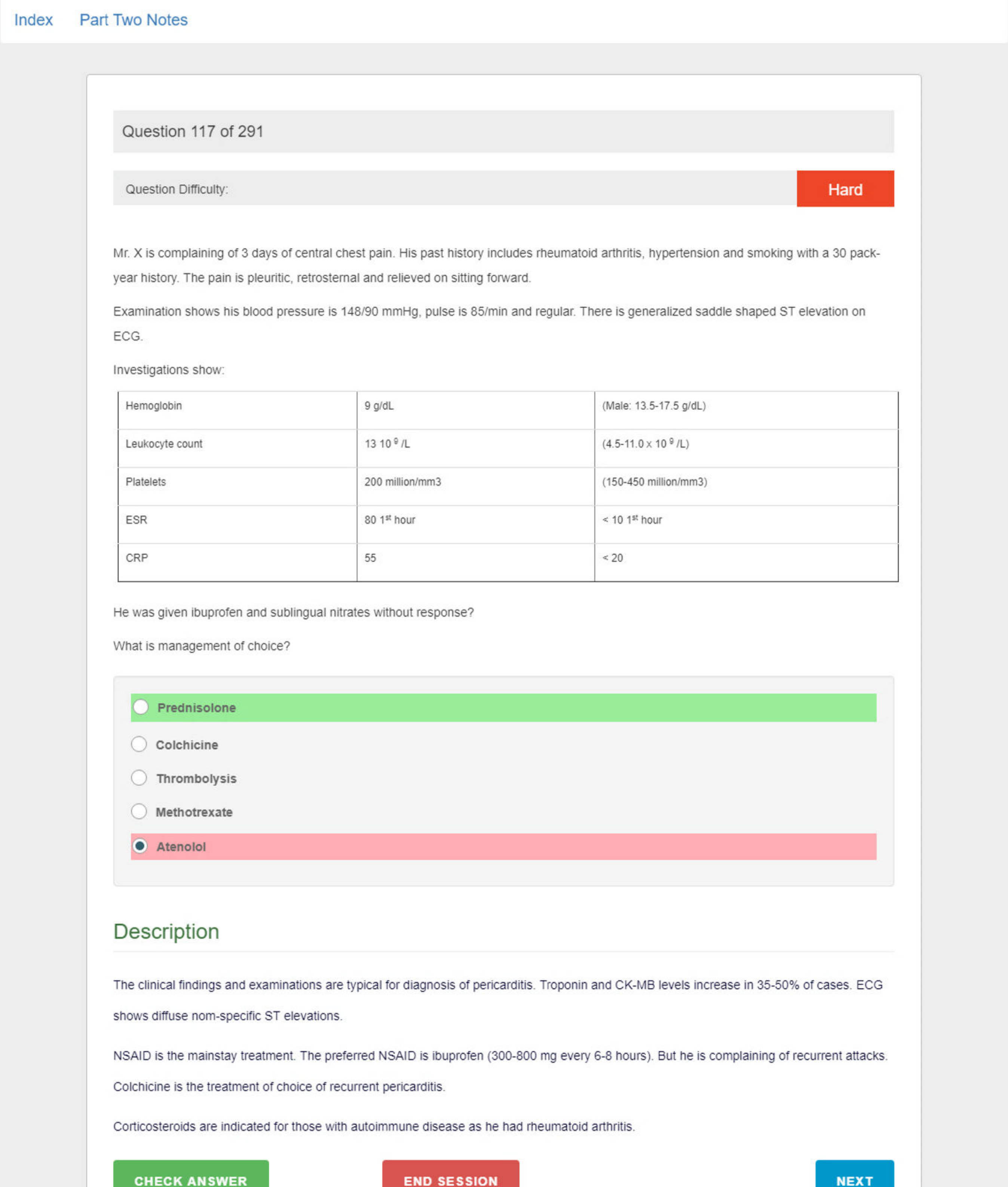
○ **Prednisolone**
○ **Colchicine**
○ **Thrombolysis**
○ **Methotrexate**
● **Atenolol**

Description

The clinical findings and examinations are typical for diagnosis of pericarditis. Troponin and CK-MB levels increase in 35-50% of cases. ECG shows diffuse nom-specific ST elevations.

NSAID is the mainstay treatment. The preferred NSAID is ibuprofen (300-800 mg every 6-8 hours). But he is complaining of recurrent attacks. Colchicine is the treatment of choice of recurrent pericarditis.

Corticosteroids are indicated for those with autoimmune disease as he had rheumatoid arthritis.



Question 117 of 291

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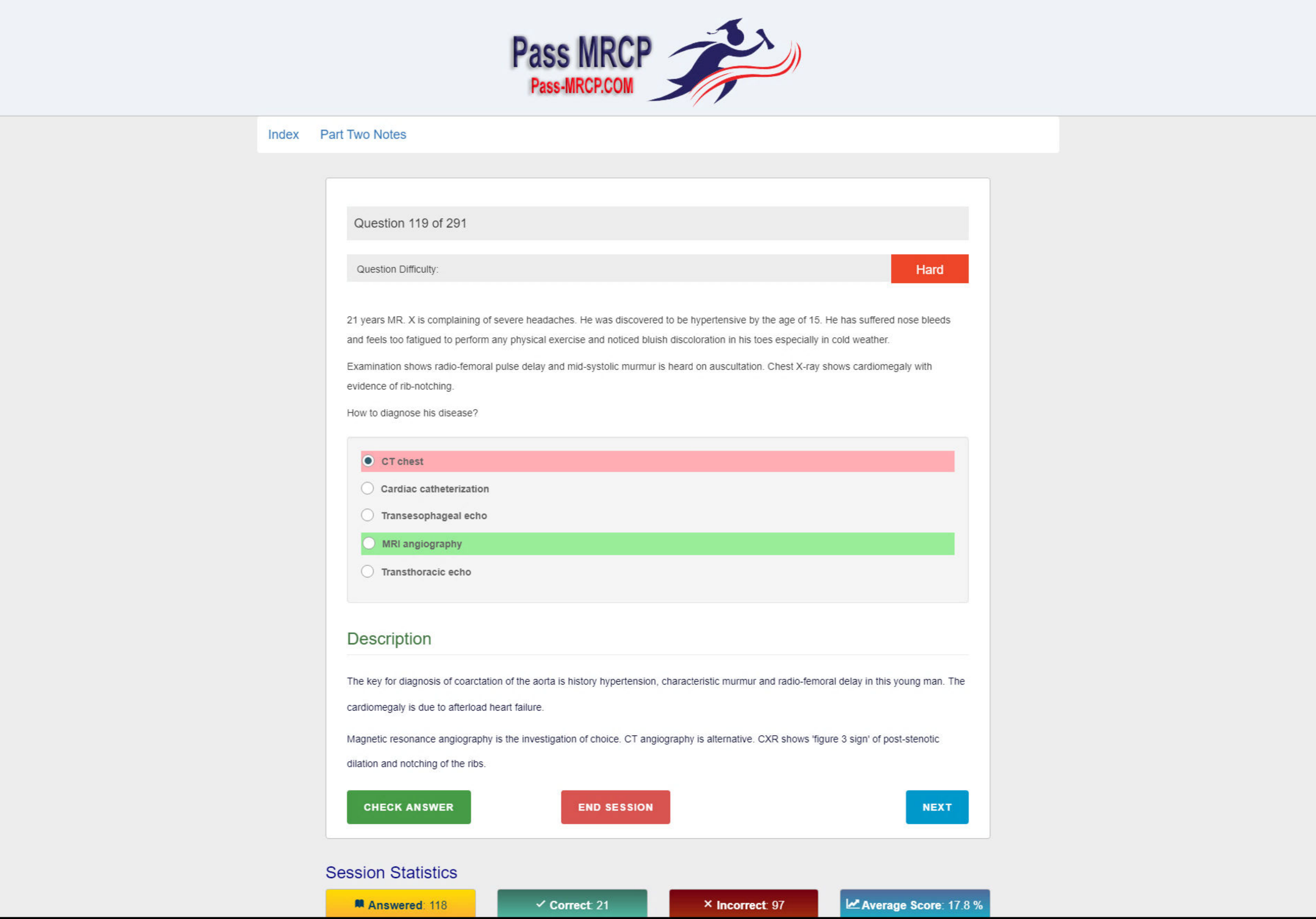


Question 119 of 291

Question Difficulty: **Hard**

21 years MR. X is complaining of severe headaches. He was discovered to be hypertensive by the age of 15. He has suffered nose bleeds and feels too fatigued to perform any physical exercise and noticed bluish discoloration in his toes especially in cold weather.

Examination shows radio-femoral pulse delay and mid-systolic murmur is heard on auscultation. Chest X-ray shows cardiomegaly with evidence of rib-notching.

How to diagnose his disease?

- ● **CT chest**
- ○ **Cardiac catheterization**
- ○ **Transesophageal echo**
- ○ **MRI angiography**
- ○ **Transthoracic echo**

Description

The key for diagnosis of coarctation of the aorta is history hypertension, characteristic murmur and radio-femoral delay in this young man. The cardiomegaly is due to afterload heart failure.

Magnetic resonance angiography is the investigation of choice. CT angiography is alternative. CXR shows 'figure 3 sign' of post-stenotic dilation and notching of the ribs.

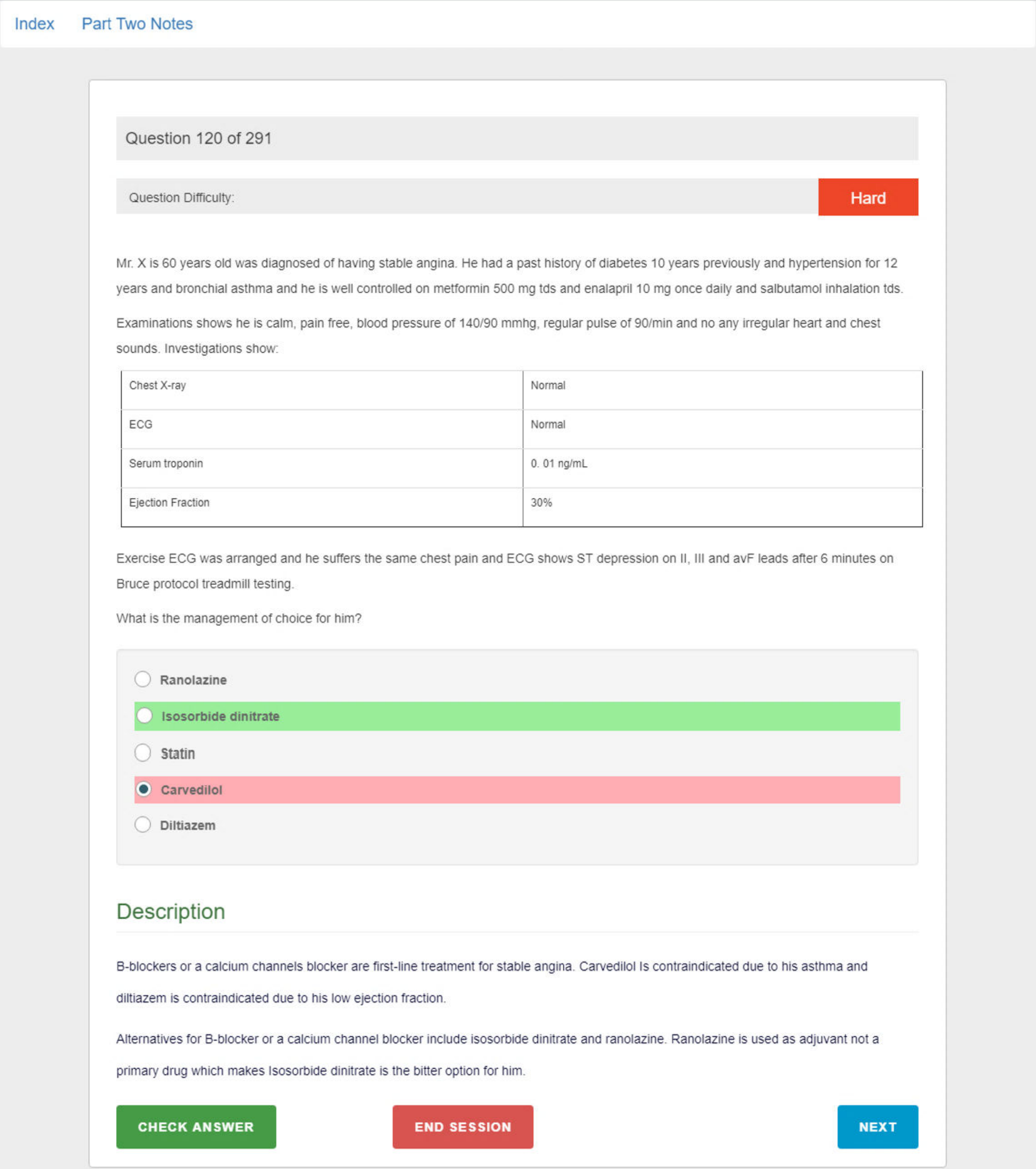
Session Statistics

Answered: 118

✓ **Correct**: 21

× **Incorrect**: 97

Average Score: 17.8 %



Question 120 of 291

Mr. X is 60 years old was diagnosed of having stable angina. He had a past history of diabetes 10 years previously and hypertension for 12 years and bronchial asthma and he is well controlled on metformin 500 mg tds and enalapril 10 mg once daily and salbutamol inhalation tds.

Examinations shows he is calm, pain free, blood pressure of 140/90 mmhg, regular pulse of 90/min and no any irregular heart and chest sounds. Investigations show:

Chest X-ray	Normal
ECG	Normal
Serum troponin	0. 01 ng/mL
Ejection Fraction	30%

Exercise ECG was arranged and he suffers the same chest pain and ECG shows ST depression on II, III and avF leads after 6 minutes on Bruce protocol treadmill testing.

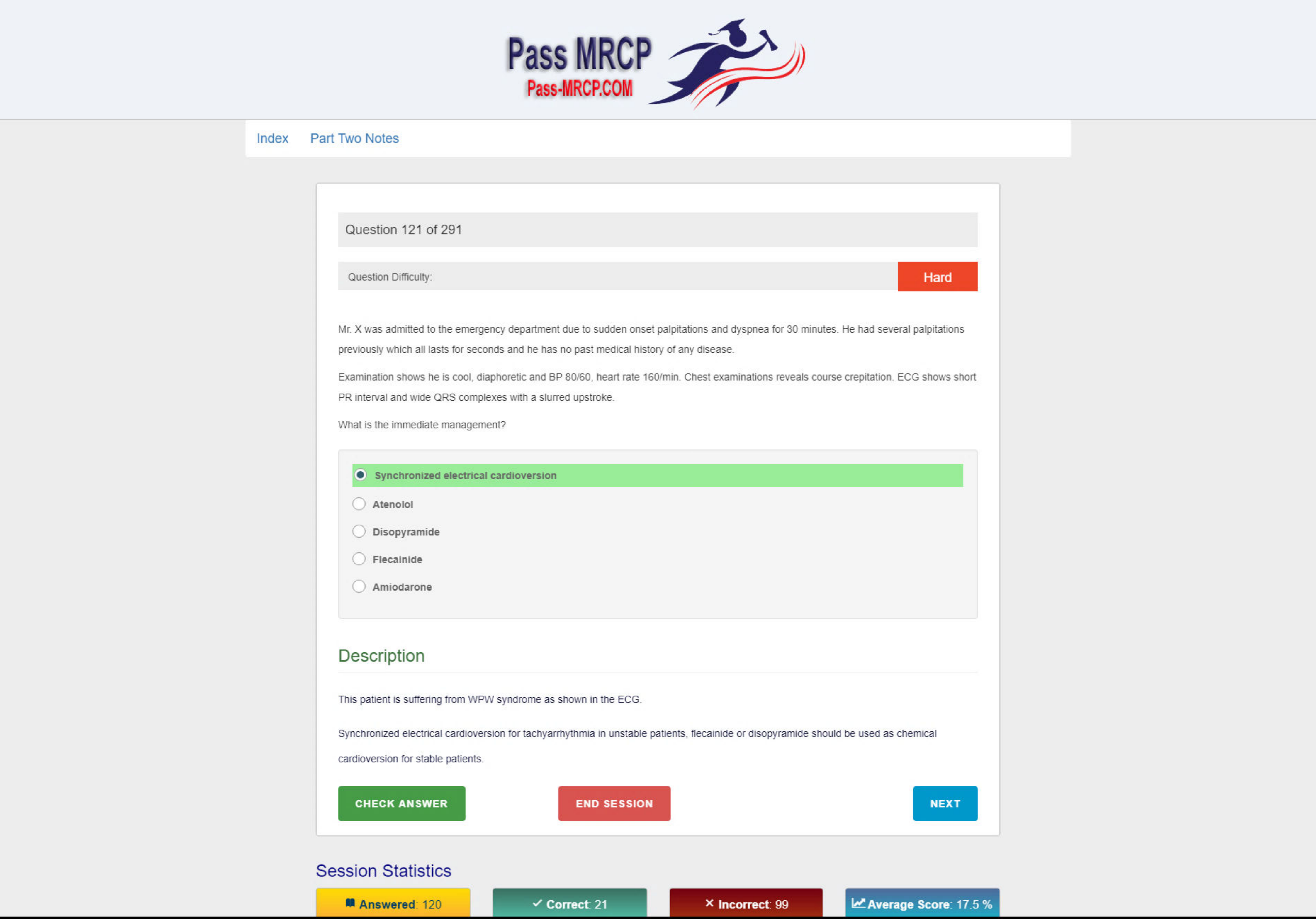
What is the management of choice for him?

- ○ **Ranolazine**
- ○ **Isosorbide dinitrate**
- ○ **Statin**
- ● **Carvedilol**
- ○ **Diltiazem**

Description

B-blockers or a calcium channels blocker are first-line treatment for stable angina. Carvedilol Is contraindicated due to his asthma and diltiazem is contraindicated due to his low ejection fraction.

Alternatives for B-blocker or a calcium channel blocker include isosorbide dinitrate and ranolazine. Ranolazine is used as adjuvant not a primary drug which makes Isosorbide dinitrate is the bitter option for him.



Question 121 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the emergency department due to sudden onset palpitations and dyspnea for 30 minutes. He had several palpitations previously which all lasts for seconds and he has no past medical history of any disease.

Examination shows he is cool, diaphoretic and BP 80/60, heart rate 160/min. Chest examinations reveals course crepitation. ECG shows short PR interval and wide QRS complexes with a slurred upstroke.

What is the immediate management?

- ● **Synchronized electrical cardioversion**
- ○ **Atenolol**
- ○ **Disopyramide**
- ○ **Flecainide**
- ○ **Amiodarone**

Description

This patient is suffering from WPW syndrome as shown in the ECG.

Synchronized electrical cardioversion for tachyarrhythmia in unstable patients, flecainide or disopyramide should be used as chemical cardioversion for stable patients.

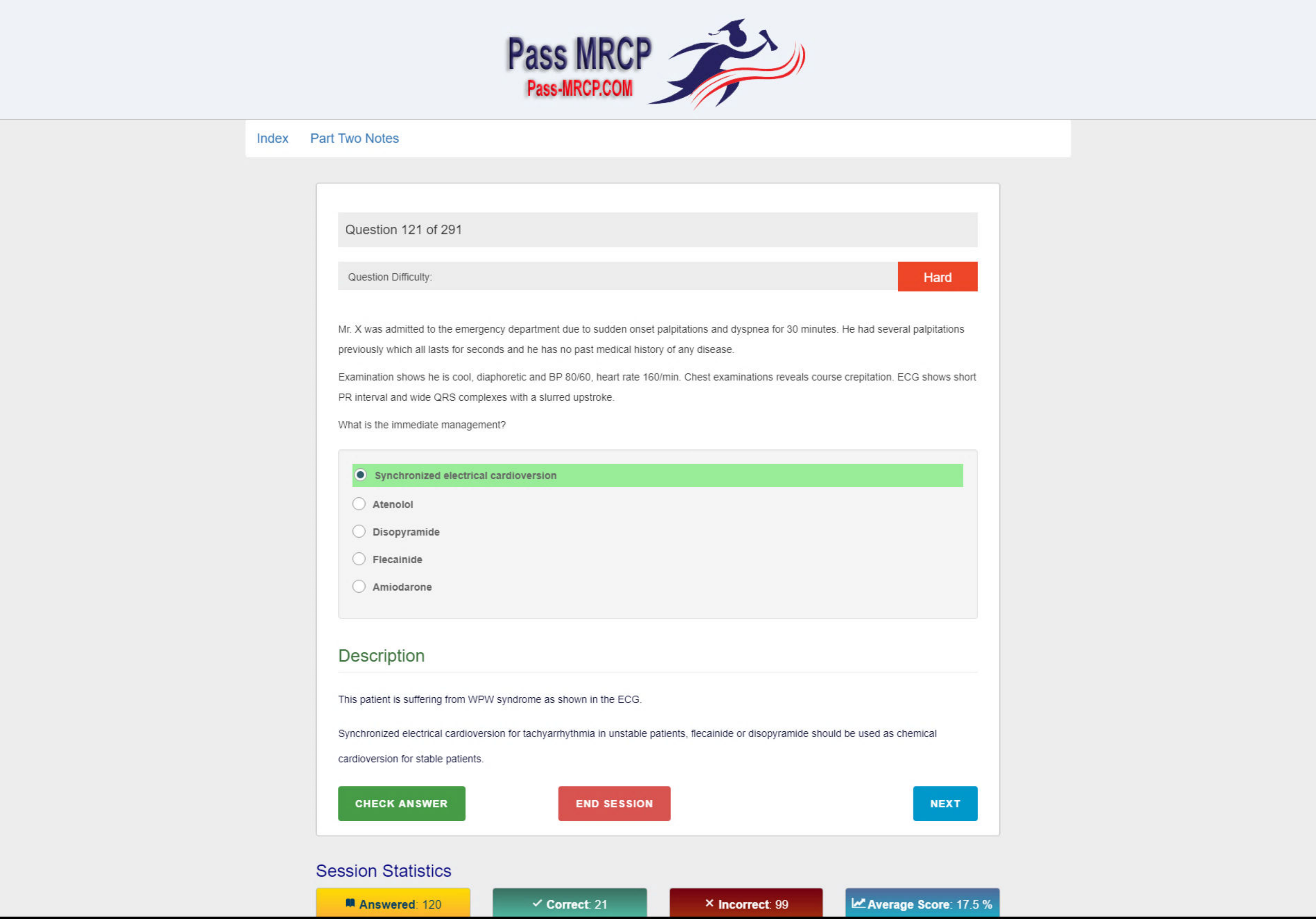
Session Statistics

Answered: 120

✓ **Correct**: 21

✕ **Incorrect**: 99

Average Score: 17.5 %



Question 121 of 291

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- ○ **Atenolol**
- ○ **Disopyramide**
- ○ **Flecainide**
- ○ **Amiodarone**

Description

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Synchronized electrical cardioversion for tachyarrhythmia in unstable patients, flecainide or disopyramide should be used as chemical cardioversion for stable patients.

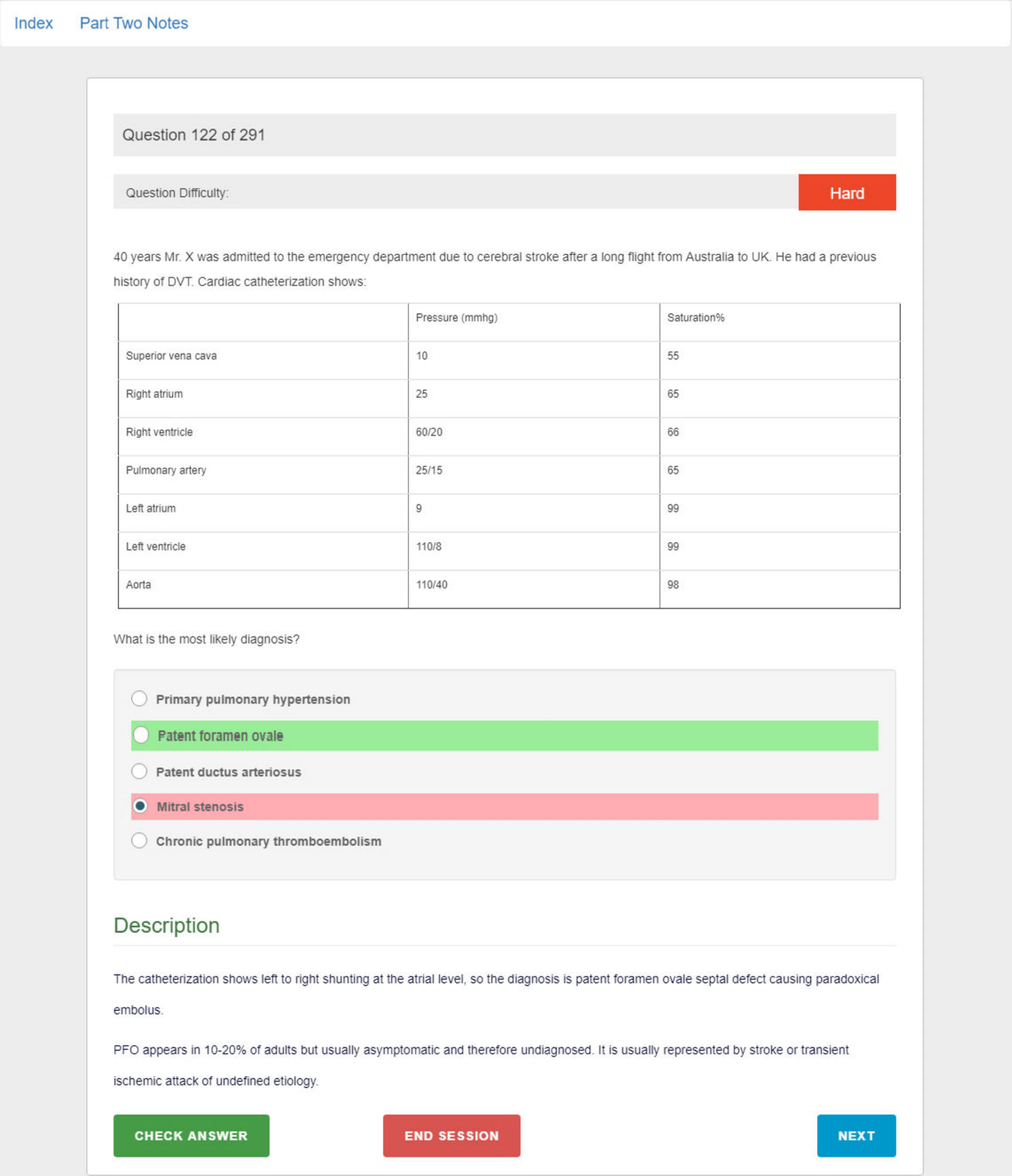
Session Statistics

Answered: 120

Correct: 21

Incorrect: 99

Average Score: 17.5 %



Question 122 of 291

Question Difficulty: **Hard**

40 years Mr. X was admitted to the emergency department due to cerebral stroke after a long flight from Australia to UK. He had a previous history of DVT. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	25	65
Right ventricle	60/20	66
Pulmonary artery	25/15	65
Left atrium	9	99
Left ventricle	110/8	99
Aorta	110/40	98

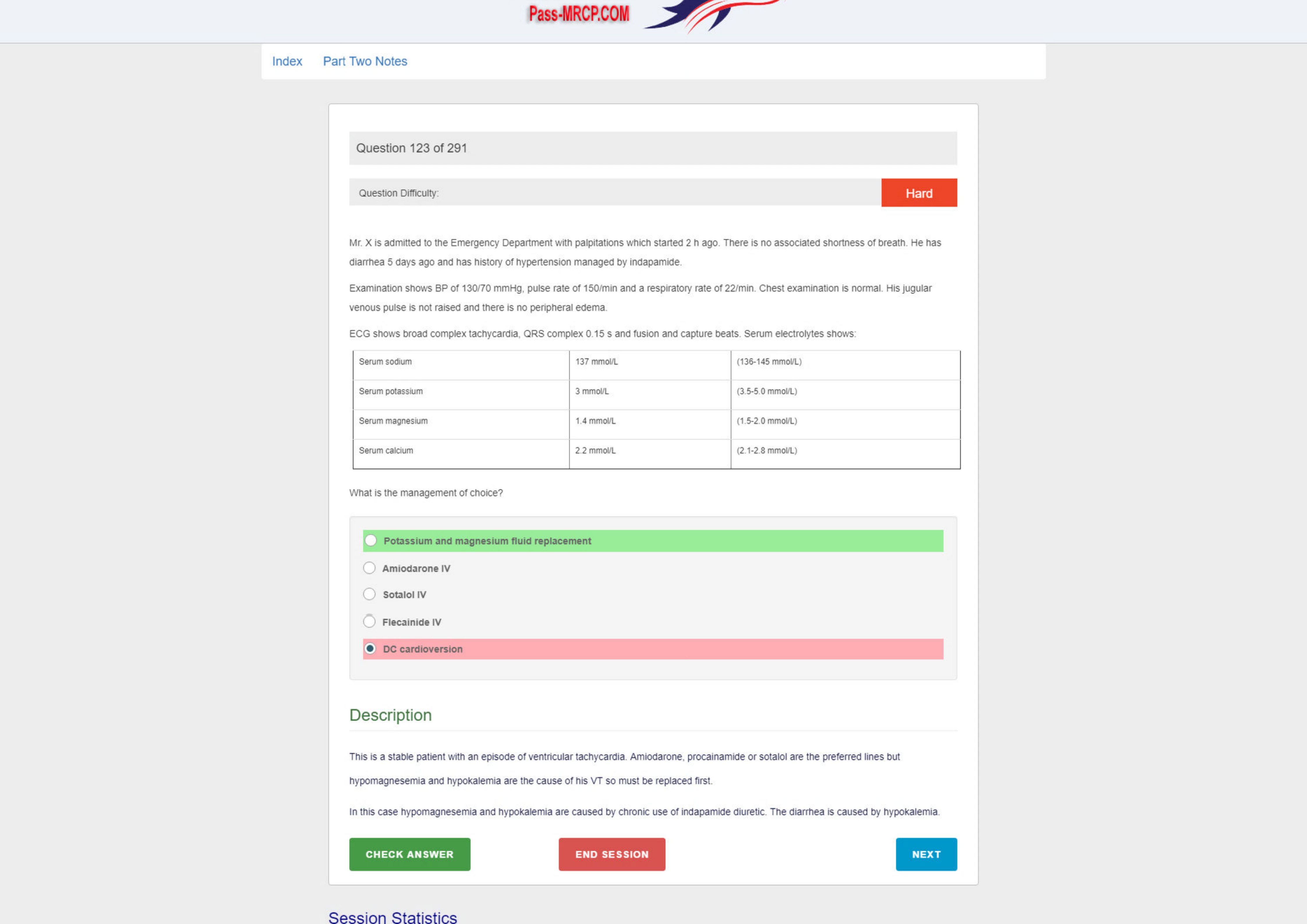
What is the most likely diagnosis?

- ○ **Primary pulmonary hypertension**
- ○ **Patent foramen ovale**
- ○ **Patent ductus arteriosus**
- ● **Mitral stenosis**
- ○ **Chronic pulmonary thromboembolism**

Description

The catheterization shows left to right shunting at the atrial level, so the diagnosis is patent foramen ovale septal defect causing paradoxical embolus.

PFO appears in 10-20% of adults but usually asymptomatic and therefore undiagnosed. It is usually represented by stroke or transient ischemic attack of undefined etiology.



Question 123 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the Emergency Department with palpitations which started 2 h ago. There is no associated shortness of breath. He has diarrhea 5 days ago and has history of hypertension managed by indapamide.

Examination shows BP of 130/70 mmHg, pulse rate of 150/min and a respiratory rate of 22/min. Chest examination is normal. His jugular venous pulse is not raised and there is no peripheral edema.

ECG shows broad complex tachycardia, QRS complex 0.15 s and fusion and capture beats. Serum electrolytes shows:

Serum sodium	137 mmol/L	(136-145 mmol/L)
Serum potassium	3 mmol/L	(3.5-5.0 mmol/L)
Serum magnesium	1.4 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.2 mmol/L	(2.1-2.8 mmol/L)

What is the management of choice?

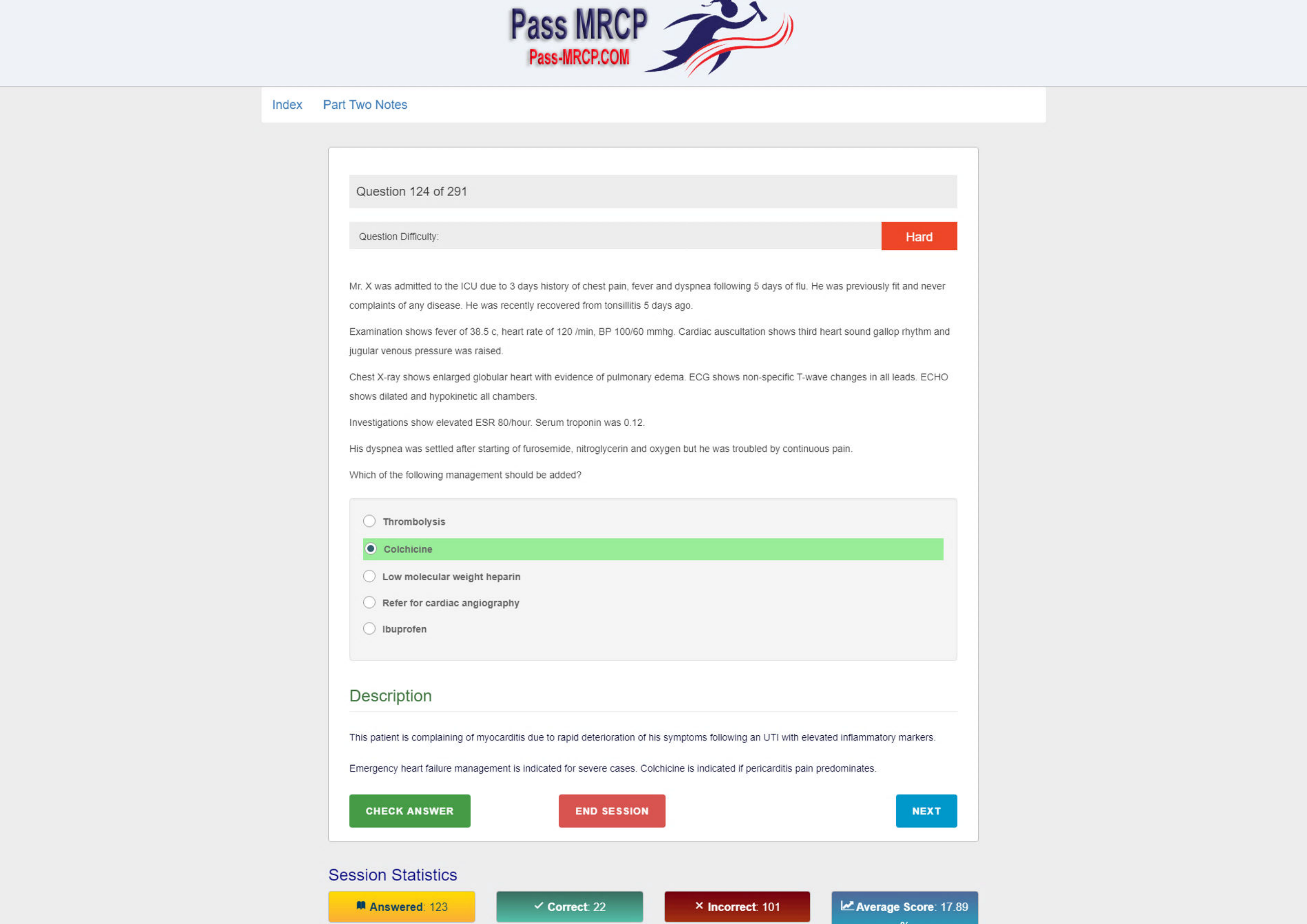
- ○ **Potassium and magnesium fluid replacement**
- ○ **Amiodarone IV**
- ○ **Sotalol IV**
- ○ **Flecainide IV**
- ● **DC cardioversion**

Description

This is a stable patient with an episode of ventricular tachycardia. Amiodarone, procainamide or sotalol are the preferred lines but hypomagnesemia and hypokalemia are the cause of his VT so must be replaced first.

In this case hypomagnesemia and hypokalemia are caused by chronic use of indapamide diuretic. The diarrhea is caused by hypokalemia.

Session Statistics



Question 124 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the ICU due to 3 days history of chest pain, fever and dyspnea following 5 days of flu. He was previously fit and never complaints of any disease. He was recently recovered from tonsillitis 5 days ago.

Examination shows fever of 38.5 c, heart rate of 120 /min, BP 100/60 mmhg. Cardiac auscultation shows third heart sound gallop rhythm and jugular venous pressure was raised.

Chest X-ray shows enlarged globular heart with evidence of pulmonary edema. ECG shows non-specific T-wave changes in all leads. ECHO shows dilated and hypokinetic all chambers.

Investigations show elevated ESR 80/hour. Serum troponin was 0.12.

His dyspnea was settled after starting of furosemide, nitroglycerin and oxygen but he was troubled by continuous pain.

Which of the following management should be added?

○ **Thrombolysis**
● **Colchicine**
○ **Low molecular weight heparin**
○ **Refer for cardiac angiography**
○ **Ibuprofen**

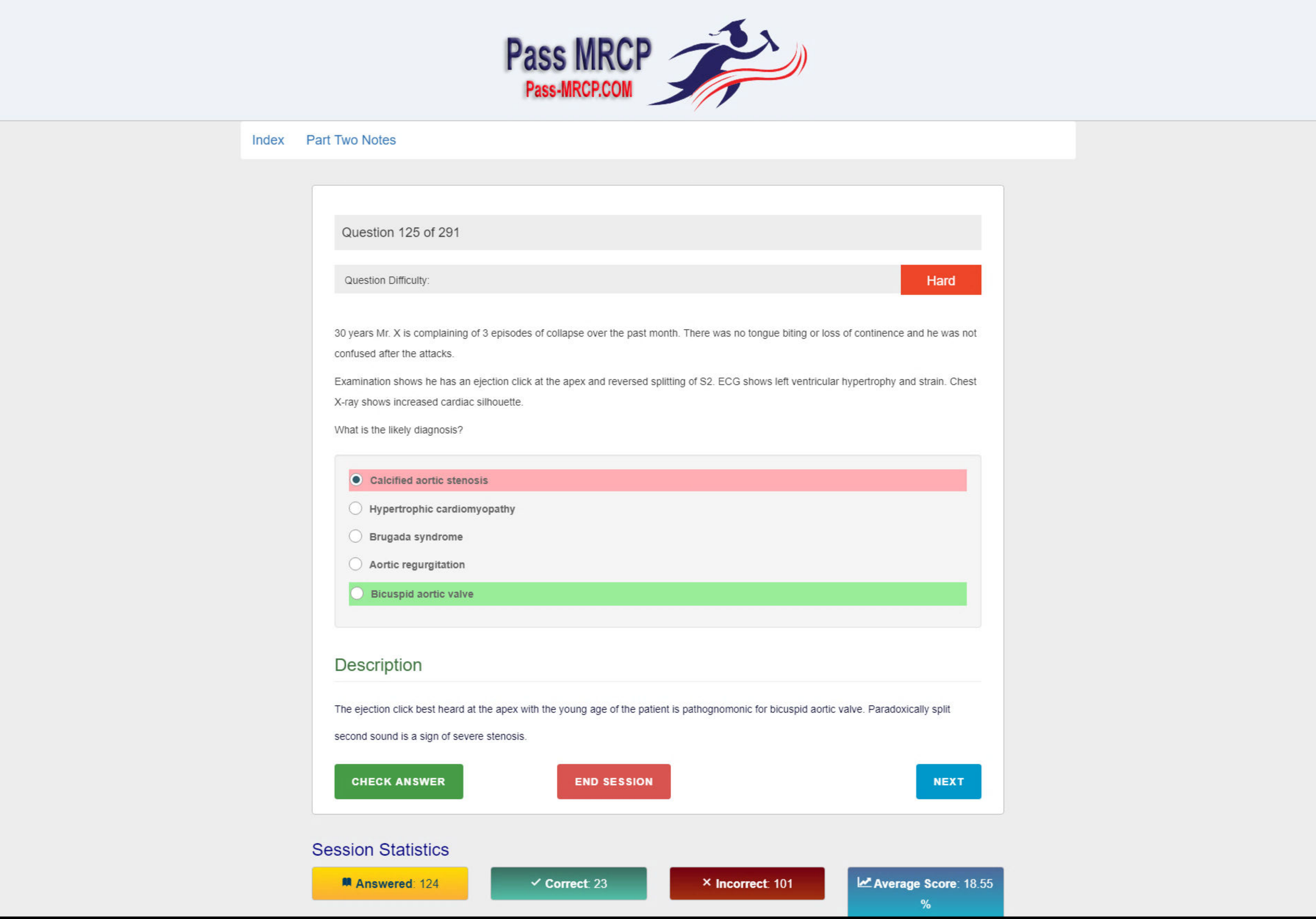
Description

This patient is complaining of myocarditis due to rapid deterioration of his symptoms following an UTI with elevated inflammatory markers.

Emergency heart failure management is indicated for severe cases. Colchicine is indicated if pericarditis pain predominates.

Session Statistics

Answered: 123
Correct: 22
Incorrect: 101
Average Score: 17.89



Question 125 of 291

Question Difficulty: Hard

30 years Mr. X is complaining of 3 episodes of collapse over the past month. There was no tongue biting or loss of continence and he was not confused after the attacks.

Examination shows he has an ejection click at the apex and reversed splitting of S2. ECG shows left ventricular hypertrophy and strain. Chest X-ray shows increased cardiac silhouette.

What is the likely diagnosis?

- ● **Calcified aortic stenosis**
- ○ **Hypertrophic cardiomyopathy**
- ○ **Brugada syndrome**
- ○ **Aortic regurgitation**
- ○ **Bicuspid aortic valve**

Description

The ejection click best heard at the apex with the young age of the patient is pathognomonic for bicuspid aortic valve. Paradoxically split second sound is a sign of severe stenosis.

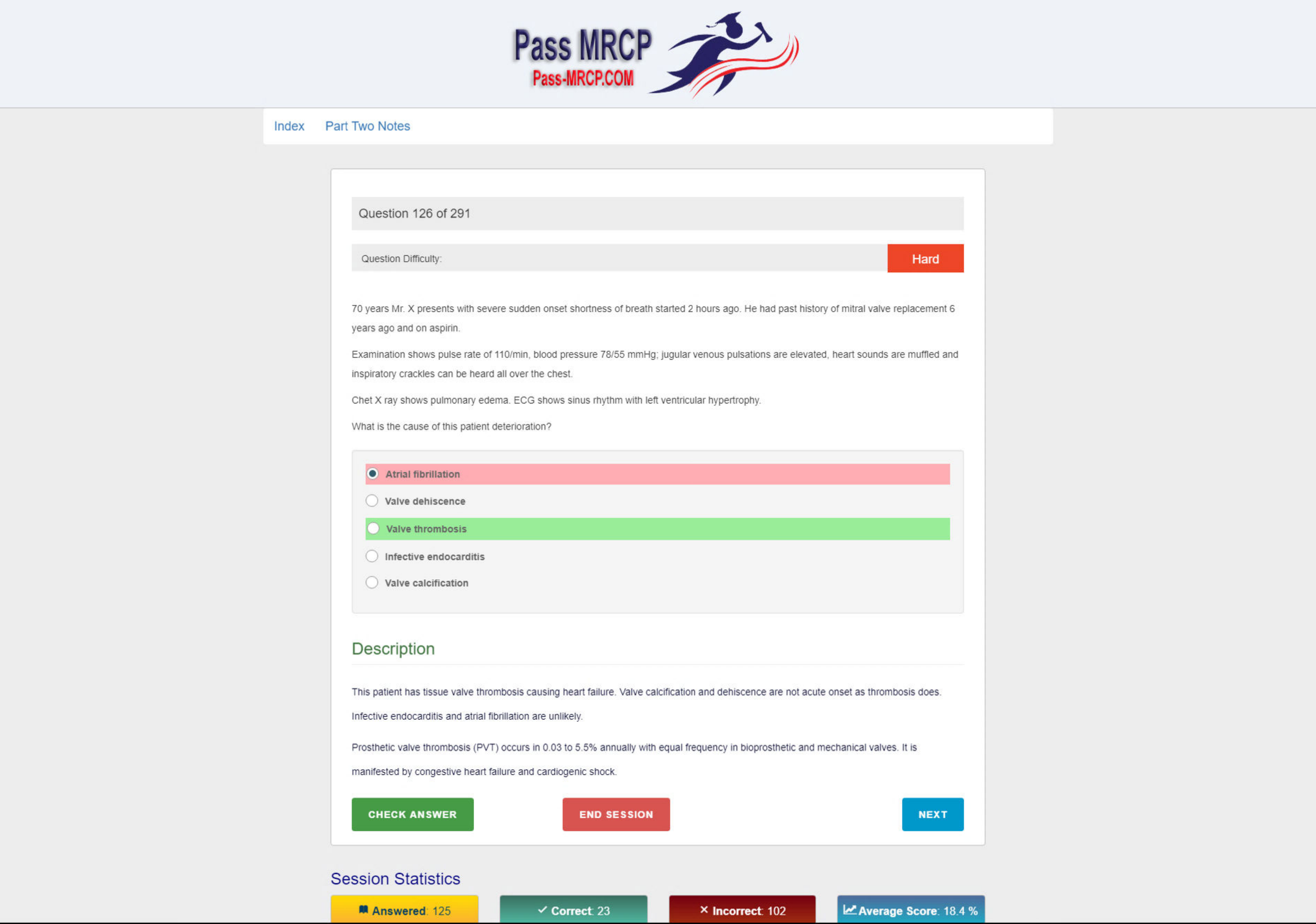
Session Statistics

Answered: 124

✓ Correct: 23

× Incorrect: 101

Average Score: 18.55 %



Question 126 of 291

Question Difficulty: Hard

70 years Mr. X presents with severe sudden onset shortness of breath started 2 hours ago. He had past history of mitral valve replacement 6 years ago and on aspirin.

Examination shows pulse rate of 110/min, blood pressure 78/55 mmHg; jugular venous pulsations are elevated, heart sounds are muffled and inspiratory crackles can be heard all over the chest.

Chet X ray shows pulmonary edema. ECG shows sinus rhythm with left ventricular hypertrophy.

What is the cause of this patient deterioration?

- ● **Atrial fibrillation**
- ○ **Valve dehiscence**
- ○ **Valve thrombosis**
- ○ **Infective endocarditis**
- ○ **Valve calcification**

Description

This patient has tissue valve thrombosis causing heart failure. Valve calcification and dehiscence are not acute onset as thrombosis does. Infective endocarditis and atrial fibrillation are unlikely.

Prosthetic valve thrombosis (PVT) occurs in 0.03 to 5.5% annually with equal frequency in bioprosthetic and mechanical valves. It is manifested by congestive heart failure and cardiogenic shock.

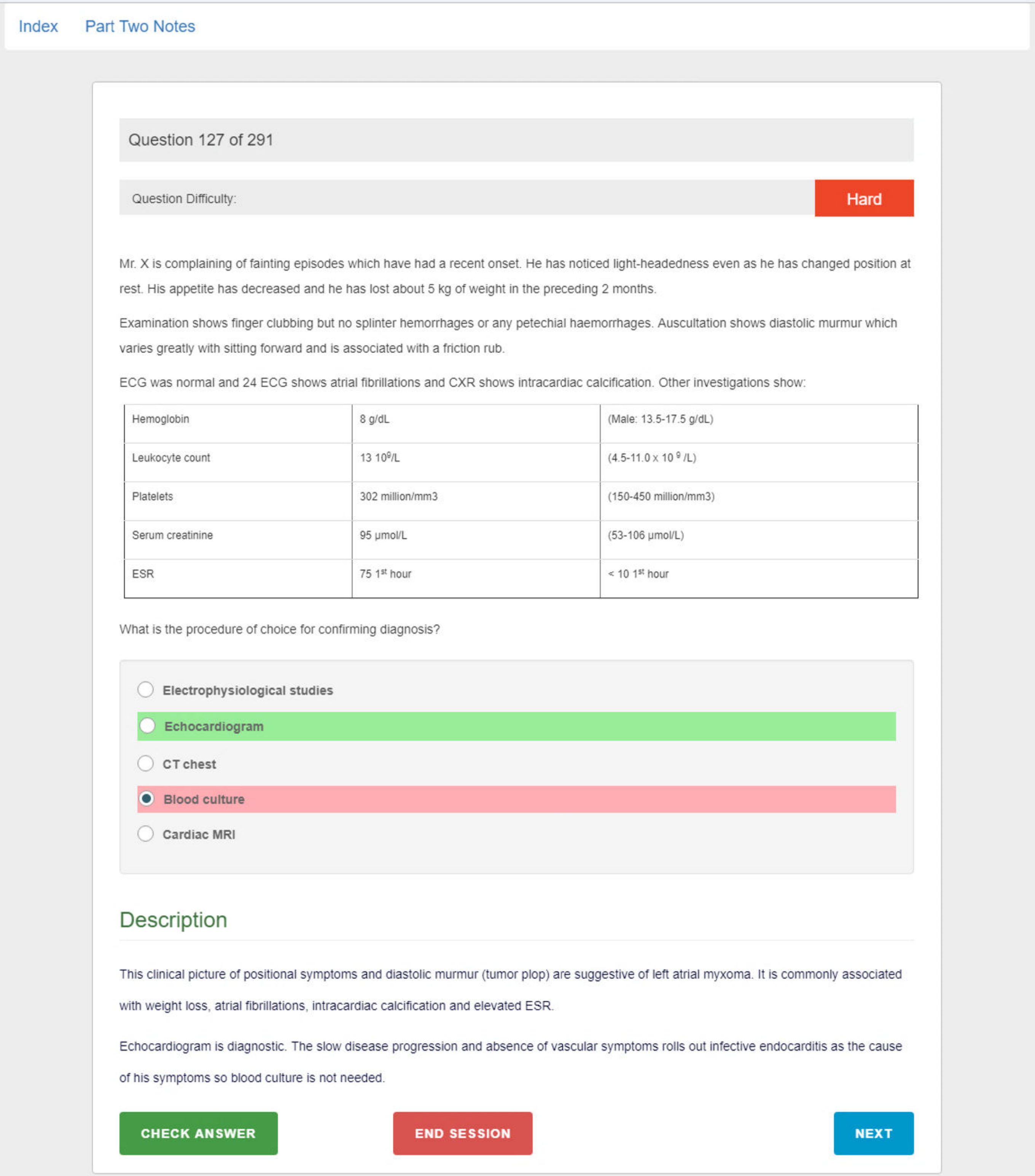
Session Statistics

Answered: 125

✓ **Correct**: 23

✕ **Incorrect**: 102

Average Score: 18.4 %



Question 127 of 291

Question Difficulty: Hard

Mr. X is complaining of fainting episodes which have had a recent onset. He has noticed light-headedness even as he has changed position at rest. His appetite has decreased and he has lost about 5 kg of weight in the preceding 2 months.

Examination shows finger clubbing but no splinter hemorrhages or any petechial haemorrhages. Auscultation shows diastolic murmur which varies greatly with sitting forward and is associated with a friction rub.

ECG was normal and 24 ECG shows atrial fibrillations and CXR shows intracardiac calcification. Other investigations show:

Hemoglobin	8 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	13 10^9/L	(4.5-11.0 x 10^9 /L)
Platelets	302 million/mm3	(150-450 million/mm3)
Serum creatinine	95 µmol/L	(53-106 µmol/L)
ESR	75 1st hour	< 10 1st hour

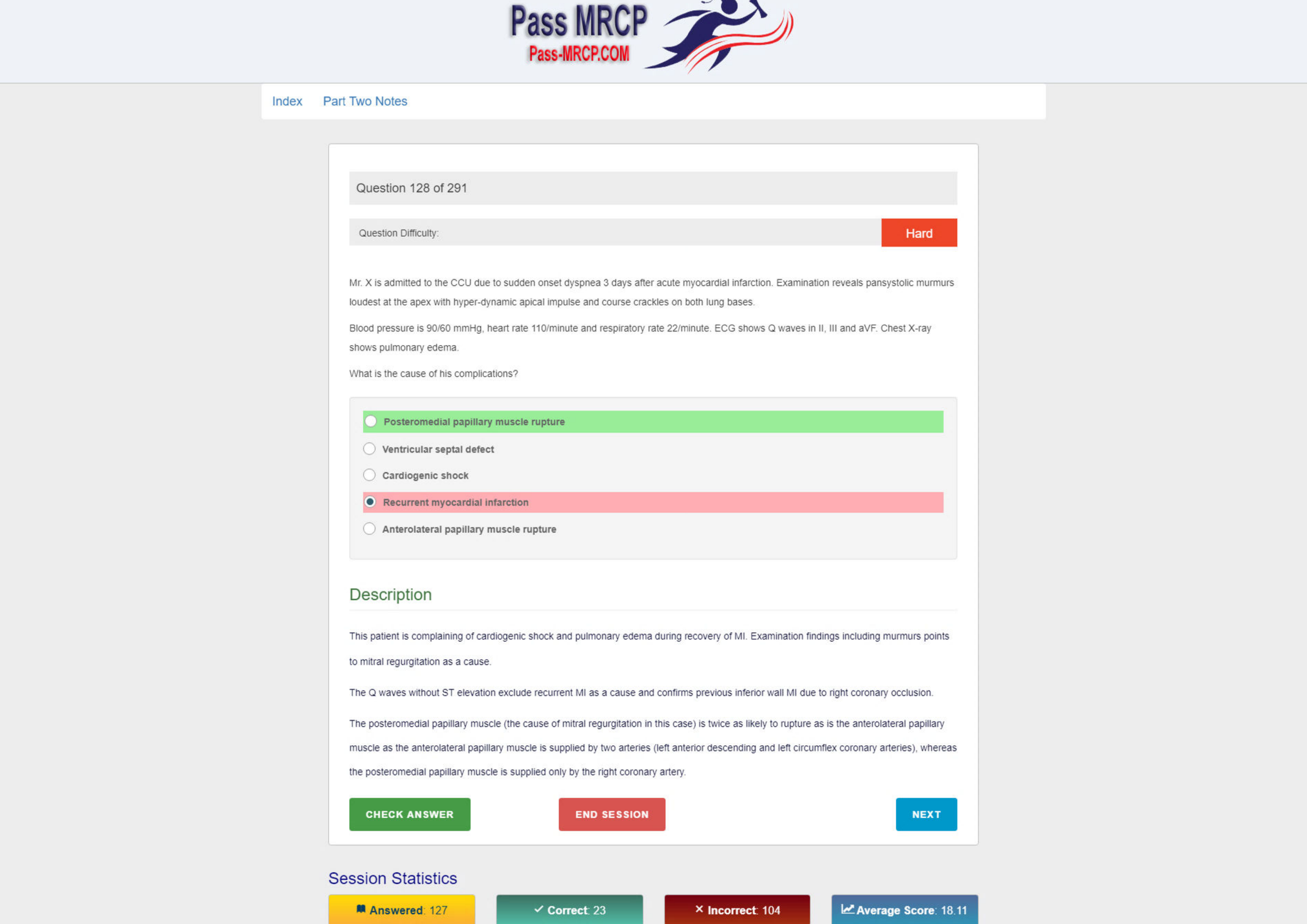
What is the procedure of choice for confirming diagnosis?

- ○ **Electrophysiological studies**
- ○ **Echocardiogram**
- ○ **CT chest**
- ● **Blood culture**
- ○ **Cardiac MRI**

Description

This clinical picture of positional symptoms and diastolic murmur (tumor plop) are suggestive of left atrial myxoma. It is commonly associated with weight loss, atrial fibrillations, intracardiac calcification and elevated ESR.

Echocardiogram is diagnostic. The slow disease progression and absence of vascular symptoms rolls out infective endocarditis as the cause of his symptoms so blood culture is not needed.



Question 128 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the CCU due to sudden onset dyspnea 3 days after acute myocardial infarction. Examination reveals pansystolic murmurs loudest at the apex with hyper-dynamic apical impulse and course crackles on both lung bases.

Blood pressure is 90/60 mmHg, heart rate 110/minute and respiratory rate 22/minute. ECG shows Q waves in II, III and aVF. Chest X-ray shows pulmonary edema.

What is the cause of his complications?

- ○ **Posteromedial papillary muscle rupture**
- ○ **Ventricular septal defect**
- ○ **Cardiogenic shock**
- ● **Recurrent myocardial infarction**
- ○ **Anterolateral papillary muscle rupture**

Description

This patient is complaining of cardiogenic shock and pulmonary edema during recovery of MI. Examination findings including murmurs points to mitral regurgitation as a cause.

The Q waves without ST elevation exclude recurrent MI as a cause and confirms previous inferior wall MI due to right coronary occlusion.

The posteromedial papillary muscle (the cause of mitral regurgitation in this case) is twice as likely to rupture as is the anterolateral papillary muscle as the anterolateral papillary muscle is supplied by two arteries (left anterior descending and left circumflex coronary arteries), whereas the posteromedial papillary muscle is supplied only by the right coronary artery.

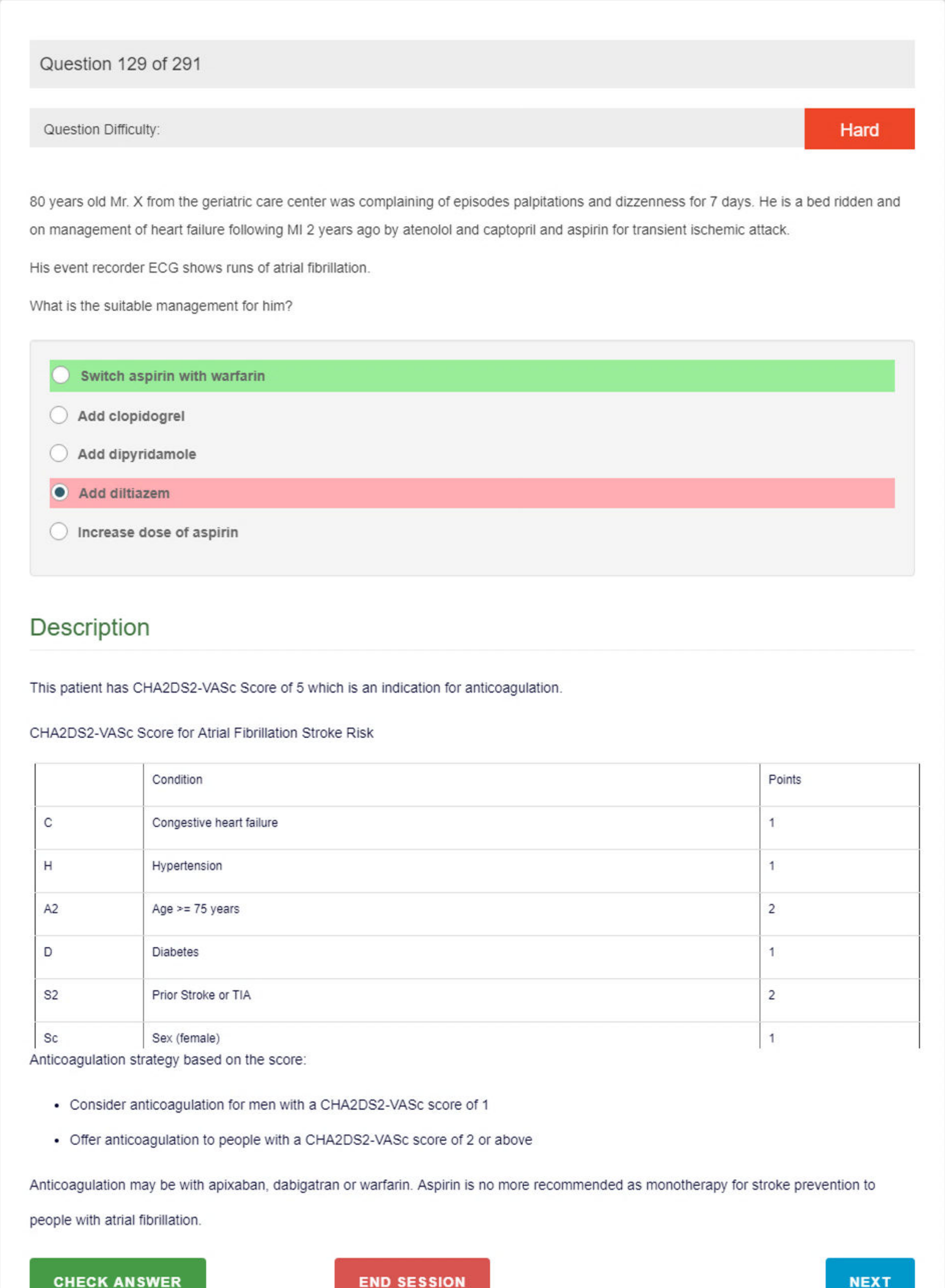
Session Statistics

Answered: 127

✓ Correct: 23

✕ Incorrect: 104

Average Score: 18.11



Question 129 of 291

Question Difficulty: **Hard**

80 years old Mr. X from the geriatric care center was complaining of episodes palpitations and dizzeness for 7 days. He is a bed ridden and on management of heart failure following MI 2 years ago by atenolol and captopril and aspirin for transient ischemic attack.

His event recorder ECG shows runs of atrial fibrillation.

What is the suitable management for him?

- ○ **Switch aspirin with warfarin**
- ○ **Add clopidogrel**
- ○ **Add dipyridamole**
- ● **Add diltiazem**
- ○ **Increase dose of aspirin**

Description

This patient has CHA2DS2-VASc Score of 5 which is an indication for anticoagulation.

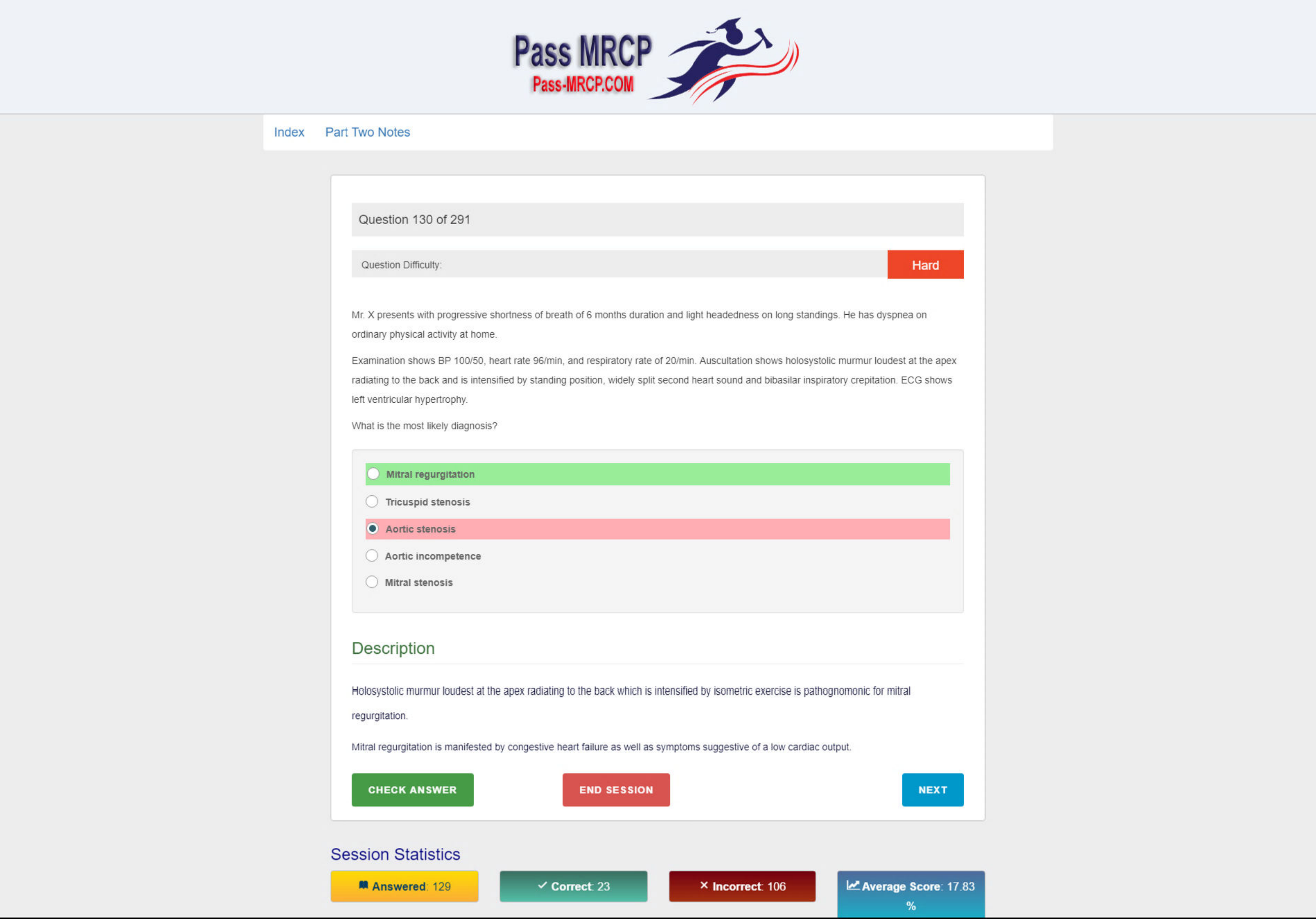
CHA2DS2-VASc Score for Atrial Fibrillation Stroke Risk

	Condition	Points
C	Congestive heart failure	1
H	Hypertension	1
A2	Age >= 75 years	2
D	Diabetes	1
S2	Prior Stroke or TIA	2
Sc	Sex (female)	1

Anticoagulation strategy based on the score:

- Consider anticoagulation for men with a CHA2DS2-VASc score of 1
- Offer anticoagulation to people with a CHA2DS2-VASc score of 2 or above

Anticoagulation may be with apixaban, dabigatran or warfarin. Aspirin is no more recommended as monotherapy for stroke prevention to people with atrial fibrillation.



Question 130 of 291

Question Difficulty: Hard

Mr. X presents with progressive shortness of breath of 6 months duration and light headedness on long standings. He has dyspnea on ordinary physical activity at home.

Examination shows BP 100/50, heart rate 96/min, and respiratory rate of 20/min. Auscultation shows holosystolic murmur loudest at the apex radiating to the back and is intensified by standing position, widely split second heart sound and bibasilar inspiratory crepitation. ECG shows left ventricular hypertrophy.

What is the most likely diagnosis?

- ○ Mitral regurgitation
- ○ Tricuspid stenosis
- ● Aortic stenosis
- ○ Aortic incompetence
- ○ Mitral stenosis

Description

Holosystolic murmur loudest at the apex radiating to the back which is intensified by isometric exercise is pathognomonic for mitral regurgitation.

Mitral regurgitation is manifested by congestive heart failure as well as symptoms suggestive of a low cardiac output.

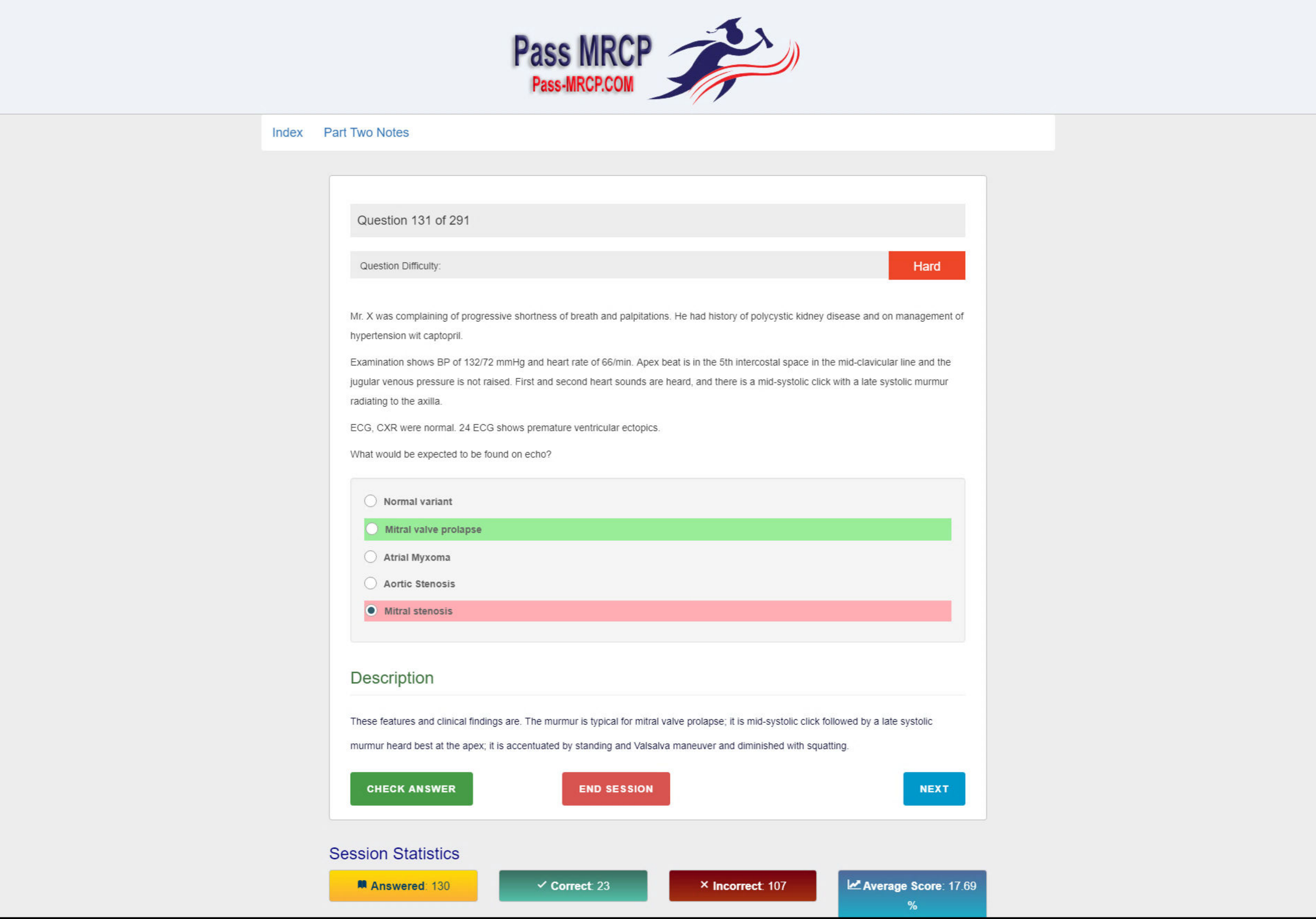
Session Statistics

Answered: 129

✓ Correct: 23

✕ Incorrect: 106

Average Score: 17.83 %



Question 131 of 291

Question Difficulty: Hard

Mr. X was complaining of progressive shortness of breath and palpitations. He had history of polycystic kidney disease and on management of hypertension wit captopril.

Examination shows BP of 132/72 mmHg and heart rate of 66/min. Apex beat is in the 5th intercostal space in the mid-clavicular line and the jugular venous pressure is not raised. First and second heart sounds are heard, and there is a mid-systolic click with a late systolic murmur radiating to the axilla.

ECG, CXR were normal. 24 ECG shows premature ventricular ectopics.

What would be expected to be found on echo?

○ Normal variant

○ Mitral valve prolapse

○ Atrial Myxoma

○ Aortic Stenosis

● Mitral stenosis

Description

These features and clinical findings are. The murmur is typical for mitral valve prolapse; it is mid-systolic click followed by a late systolic murmur heard best at the apex; it is accentuated by standing and Valsalva maneuver and diminished with squatting.

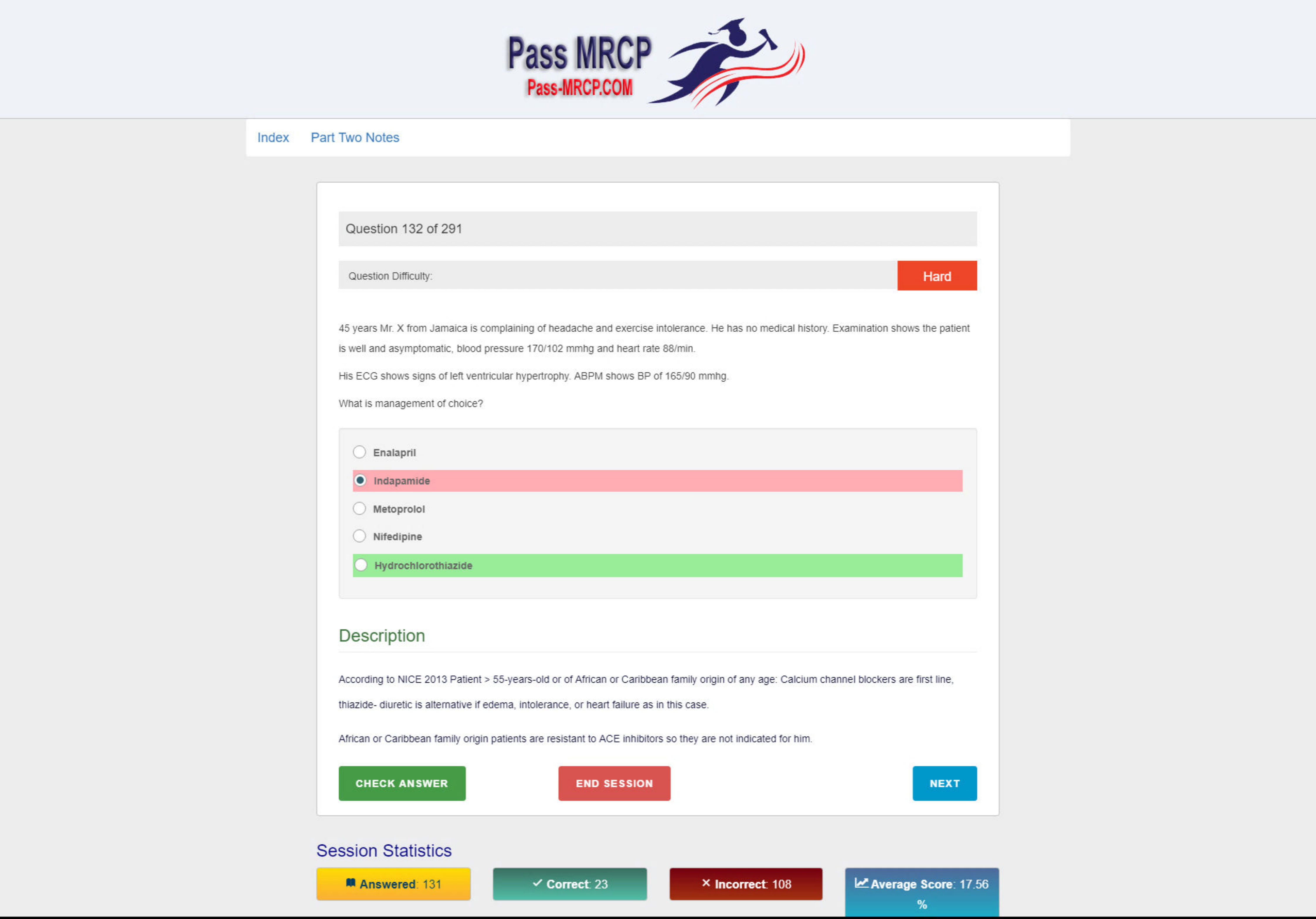
Session Statistics

Answered: 130

✓ Correct: 23

✕ Incorrect: 107

Average Score: 17.69 %



Question 132 of 291

Question Difficulty: Hard

45 years Mr. X from Jamaica is complaining of headache and exercise intolerance. He has no medical history. Examination shows the patient is well and asymptomatic, blood pressure 170/102 mmhg and heart rate 88/min.

His ECG shows signs of left ventricular hypertrophy. ABPM shows BP of 165/90 mmhg.

What is management of choice?

- ○ **Enalapril**
- ● **Indapamide**
- ○ **Metoprolol**
- ○ **Nifedipine**
- ○ **Hydrochlorothiazide**

Description

According to NICE 2013 Patient > 55-years-old or of African or Caribbean family origin of any age: Calcium channel blockers are first line, thiazide- diuretic is alternative if edema, intolerance, or heart failure as in this case.

African or Caribbean family origin patients are resistant to ACE inhibitors so they are not indicated for him.

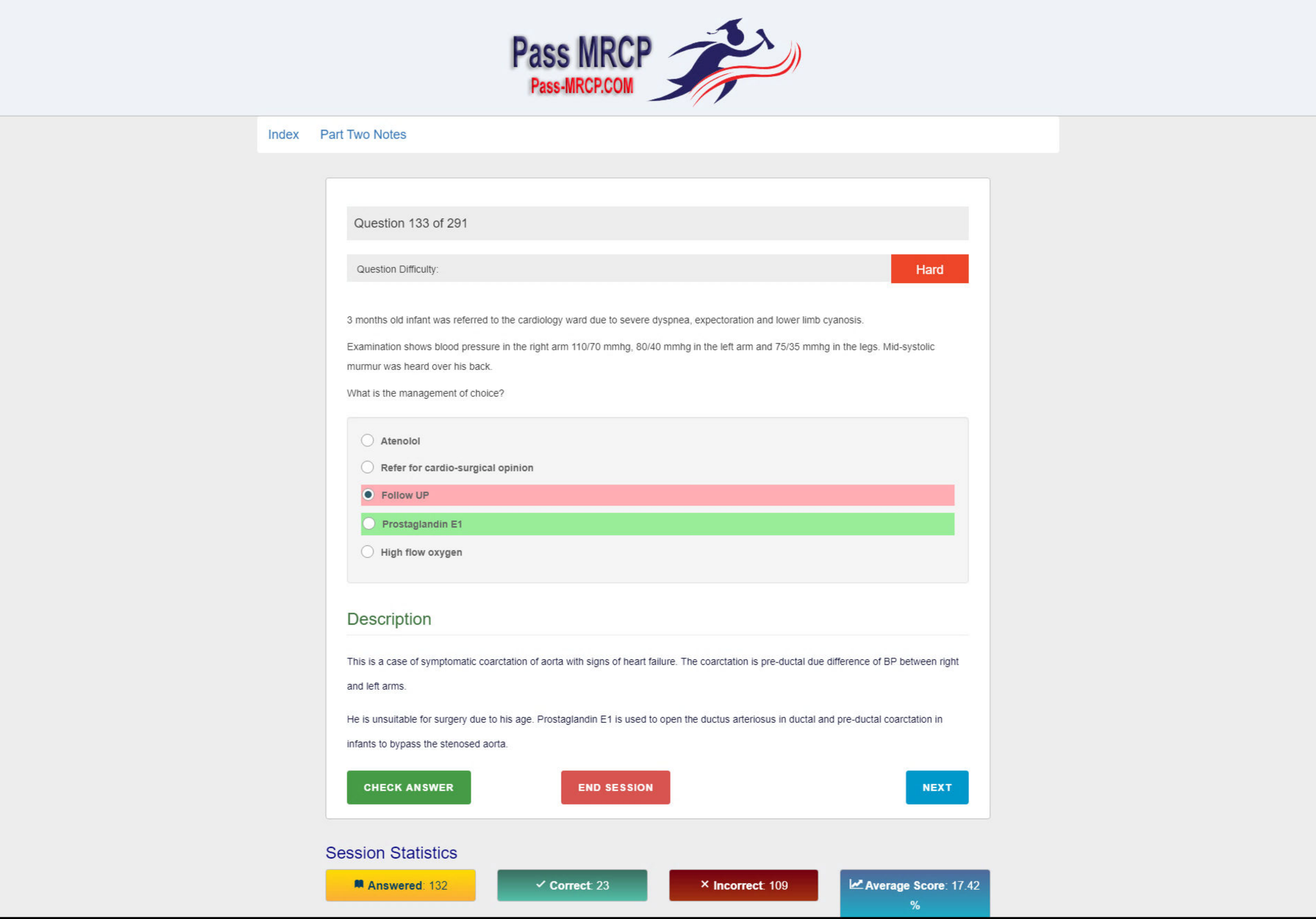
Session Statistics

Answered: 131

✓ **Correct**: 23

× **Incorrect**: 108

Average Score: 17.56 %



Question 133 of 291

Question Difficulty: Hard

3 months old infant was referred to the cardiology ward due to severe dyspnea, expectoration and lower limb cyanosis.

Examination shows blood pressure in the right arm 110/70 mmhg, 80/40 mmhg in the left arm and 75/35 mmhg in the legs. Mid-systolic murmur was heard over his back.

What is the management of choice?

- ○ Atenolol
- ○ Refer for cardio-surgical opinion
- ● Follow UP
- ○ Prostaglandin E1
- ○ High flow oxygen

Description

This is a case of symptomatic coarctation of aorta with signs of heart failure. The coarctation is pre-ductal due difference of BP between right and left arms.

He is unsuitable for surgery due to his age. Prostaglandin E1 is used to open the ductus arteriosus in ductal and pre-ductal coarctation in infants to bypass the stenosed aorta.

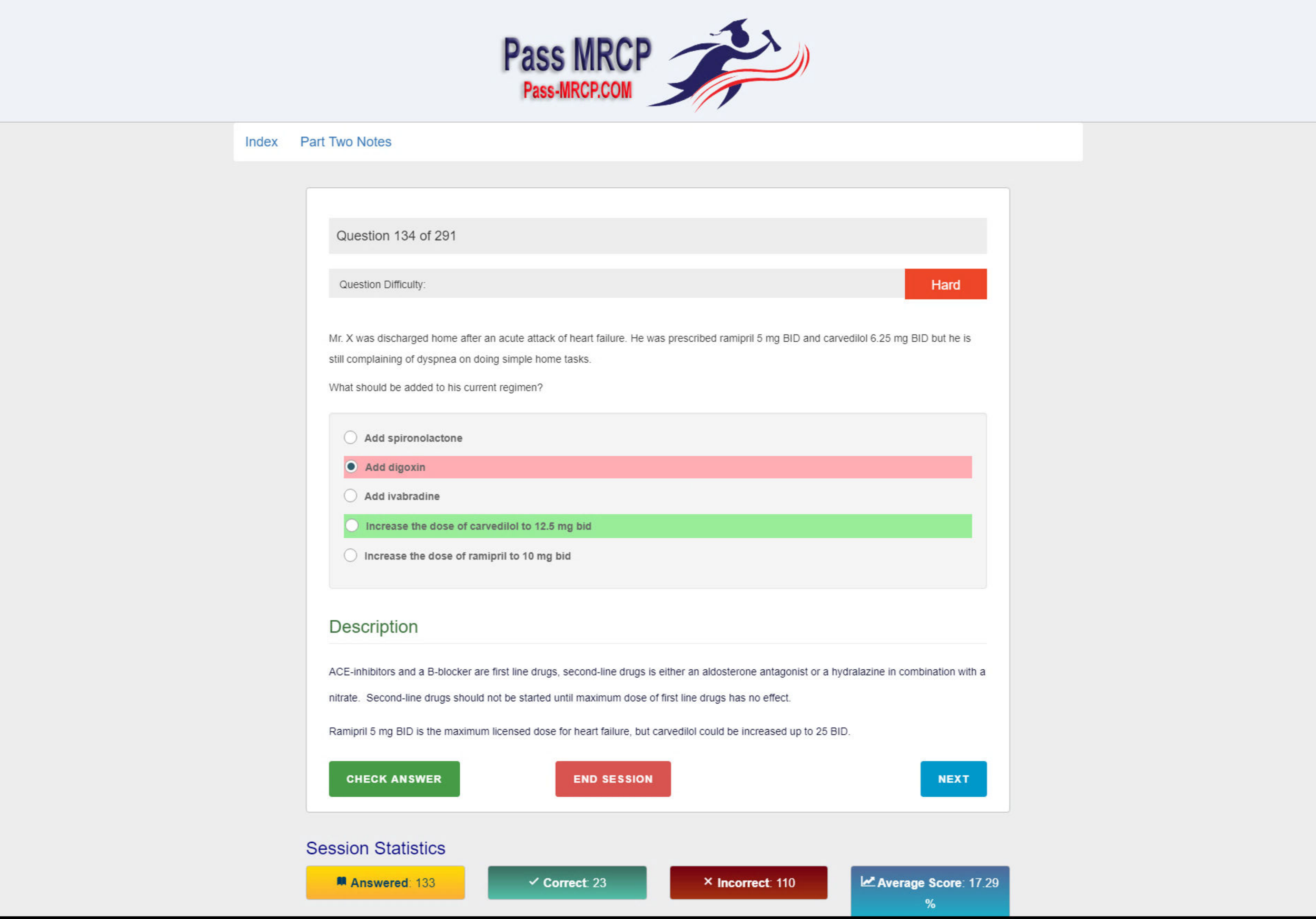
Session Statistics

Answered: 132

✓ Correct: 23

✕ Incorrect: 109

Average Score: 17.42 %



Question 134 of 291

Question Difficulty: Hard

Mr. X was discharged home after an acute attack of heart failure. He was prescribed ramipril 5 mg BID and carvedilol 6.25 mg BID but he is still complaining of dyspnea on doing simple home tasks.

What should be added to his current regimen?

○ Add spironolactone
● Add digoxin
○ Add ivabradine
○ Increase the dose of carvedilol to 12.5 mg bid
○ Increase the dose of ramipril to 10 mg bid

Description

ACE-inhibitors and a B-blocker are first line drugs, second-line drugs is either an aldosterone antagonist or a hydralazine in combination with a nitrate. Second-line drugs should not be started until maximum dose of first line drugs has no effect.

Ramipril 5 mg BID is the maximum licensed dose for heart failure, but carvedilol could be increased up to 25 BID.

Session Statistics

Answered: 133
✓ Correct: 23
✕ Incorrect: 110
Average Score: 17.29 %

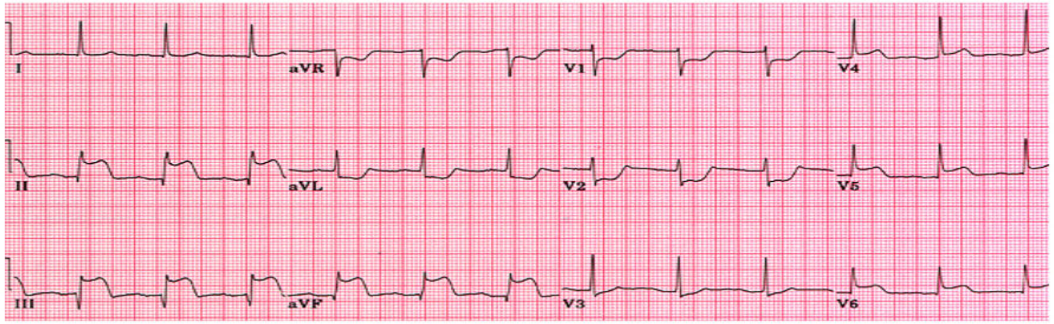
Question 135 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the emergency room due to central crushing chest pain which started 1 hour ago. He was diagnosed of having acute inferior MI last month and was managed with PCI with bare-metal stent insertion.

Examinations show he has shortness of breath, pallor and diaphoresis. Heart examination reveals irregular heart rate of 45/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 140/85 mmHg. His oxygen saturation is 90% on room air.

His serum troponin is 0.2 ng/ml. His ECG shows in the following image:



What is cause of his symptoms?

- ○ **Stent thrombosis**
- ○ **Stent restenosis**
- ○ **Dressler syndrome**
- ● **Stable angina**
- ○ **New MI**

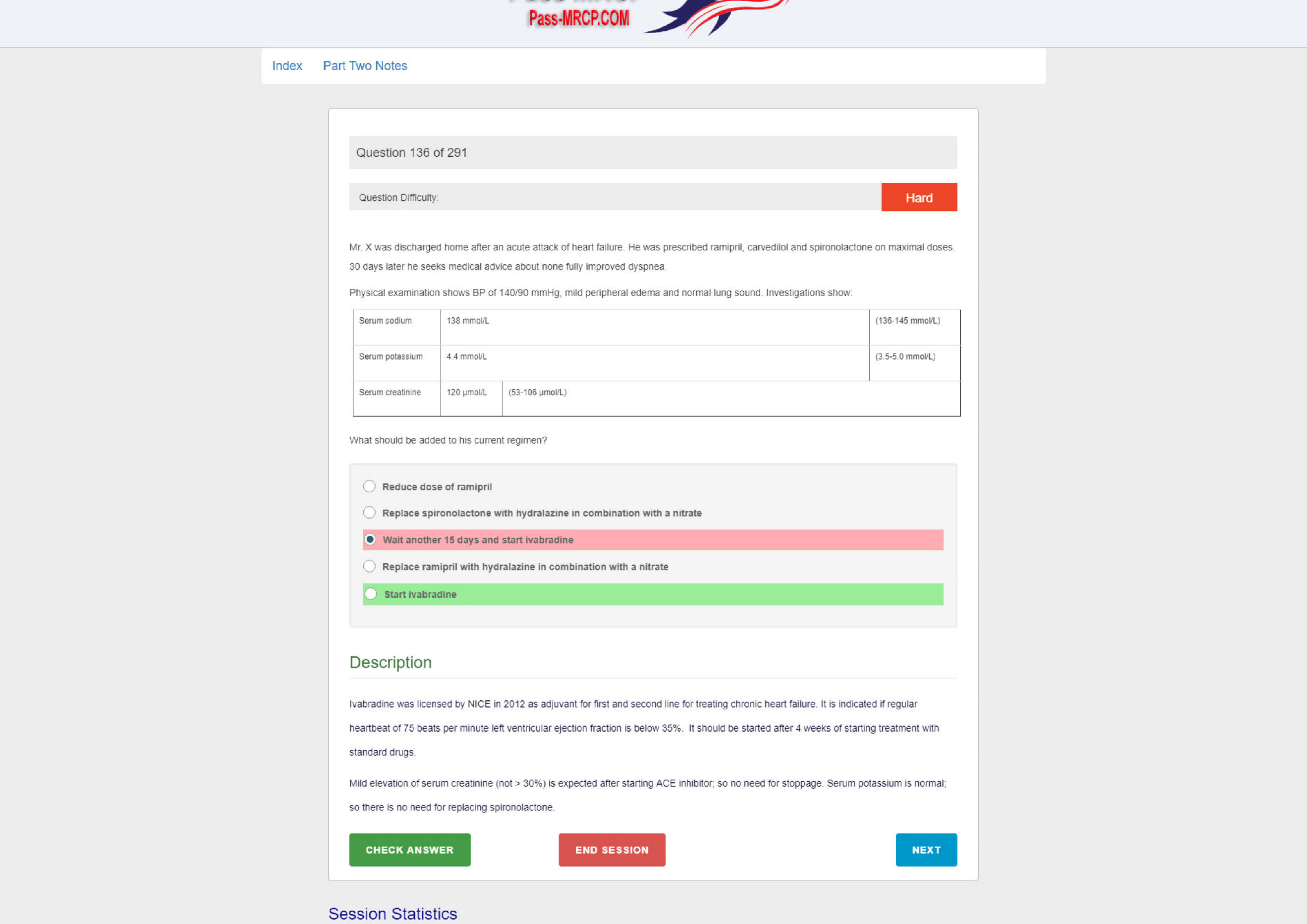
Description

This patient has recurrent inferior wall MI based on his symptoms, elevated troponin and ECG findings.

Stent thrombosis occurs in 1-2% of patients, most commonly in the first month. It presents with acute repeated myocardial infarction in the same coronary artery.

Restenosis occurs most commonly in the first 3-6 months. It presents with the recurrence of angina symptoms.

CHECK ANSWER END SESSION NEXT



Question 136 of 291

Question Difficulty: **Hard**

Mr. X was discharged home after an acute attack of heart failure. He was prescribed ramipril, carvedilol and spironolactone on maximal doses. 30 days later he seeks medical advice about none fully improved dyspnea.

Physical examination shows BP of 140/90 mmHg, mild peripheral edema and normal lung sound. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.4 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	120 µmol/L	(53-106 µmol/L)

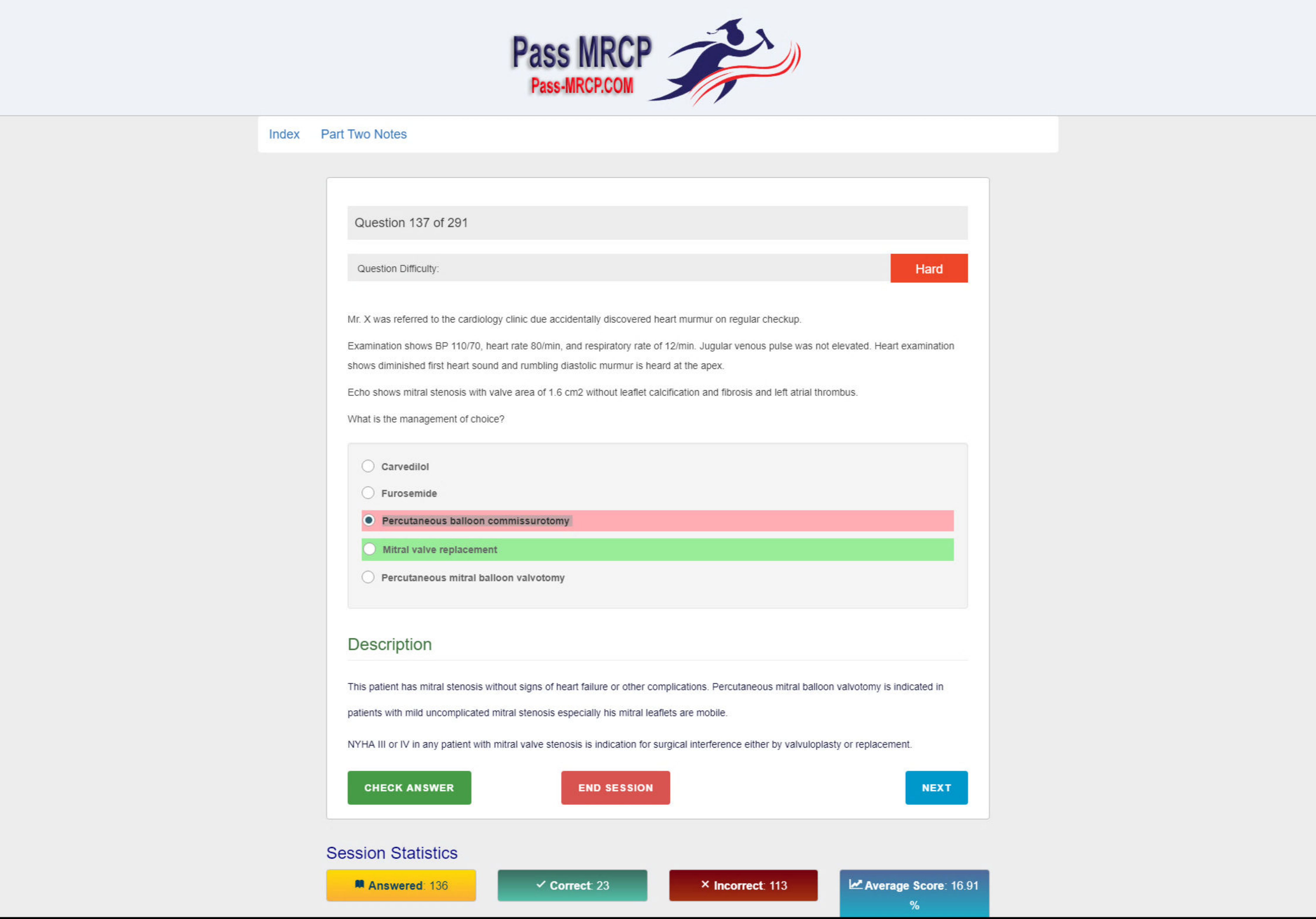
What should be added to his current regimen?

- ○ **Reduce dose of ramipril**
- ○ **Replace spironolactone with hydralazine in combination with a nitrate**
- ● **Wait another 15 days and start ivabradine**
- ○ **Replace ramipril with hydralazine in combination with a nitrate**
- ○ **Start ivabradine**

Description

Ivabradine was licensed by NICE in 2012 as adjuvant for first and second line for treating chronic heart failure. It is indicated if regular heartbeat of 75 beats per minute left ventricular ejection fraction is below 35%. It should be started after 4 weeks of starting treatment with standard drugs.

Mild elevation of serum creatinine (not > 30%) is expected after starting ACE inhibitor; so no need for stoppage. Serum potassium is normal; so there is no need for replacing spironolactone.



Question 137 of 291

Question Difficulty: Hard

Mr. X was referred to the cardiology clinic due accidentally discovered heart murmur on regular checkup.

Examination shows BP 110/70, heart rate 80/min, and respiratory rate of 12/min. Jugular venous pulse was not elevated. Heart examination shows diminished first heart sound and rumbling diastolic murmur is heard at the apex.

Echo shows mitral stenosis with valve area of 1.6 cm2 without leaflet calcification and fibrosis and left atrial thrombus.

What is the management of choice?

- ○ **Carvedilol**
- ○ **Furosemide**
- ● **Percutaneous balloon commissurotomy**
- ○ **Mitral valve replacement**
- ○ **Percutaneous mitral balloon valvotomy**

Description

This patient has mitral stenosis without signs of heart failure or other complications. Percutaneous mitral balloon valvotomy is indicated in patients with mild uncomplicated mitral stenosis especially his mitral leaflets are mobile.

NYHA III or IV in any patient with mitral valve stenosis is indication for surgical interference either by valvuloplasty or replacement.

Session Statistics

Answered: 136

✓ **Correct**: 23

✕ **Incorrect**: 113

Average Score: 16.91 %

Question 138 of 291

Question Difficulty: **Hard**

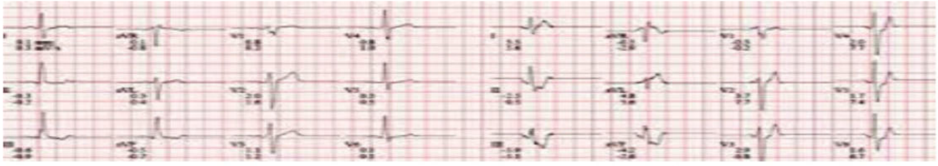
Mr. X is 60 years old is complaining of recurrent sudden onset chest discomfort located in his left shoulder and related to physical efforts which lasts about 10 minutes before relieving without any complications.

He had a past history of diabetes 10 years previously and hypertension for 12 years.

Examinations shows he is calm, pain free, blood pressure of 125/80 mmhg, regular pulse of 80/min and no any irregular heart and chest sounds. Investigations show:

Chest X-ray	Normal
Serum troponin	0. 02 ng/mL

His ECG is shown in picture.



He was started on isosorbide dinitrate and carvedilol but he still has some trouble with exertion.

What is the next management step?

His ECG is shown in picture.

He was started on isosorbide dinitrate and carvedilol but he still has some trouble with exertion.

What is the next management step?

- ○ **Refer to coronary angiogram**
- ○ **Stop carvedilol**
- ○ **Refer to Myocardial perfusion scintigraphy**
- ● **Refer exercise ECG**
- ○ **Stop isosorbide dinitrate**

Description

This patient is complaining of ischemic chest pain and his ECG shows St depression from V2-V6 which are typical for stable angina.

Imaging studies are used for assessment extent of the disease especially the patient is on optimal medical therapy.

MPS (Myocardial perfusion scintigraphy) with SPECT (Single photon emission computed tomography), CT coronary angiography or stress echocardiography are non-invasive functional testing and are of choice for diagnosis.

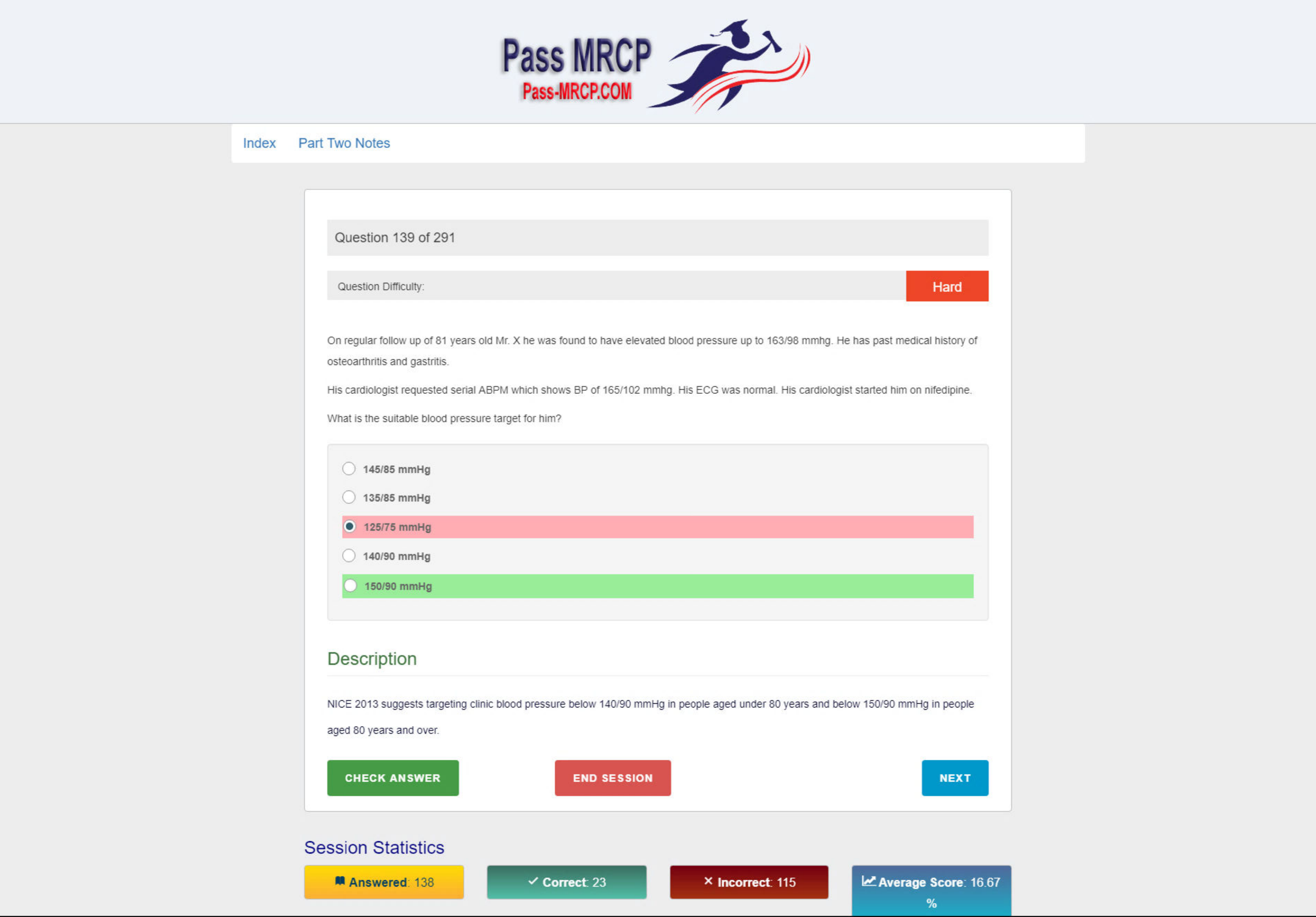
Coronary angiogram second-line investigation when the results of non-invasive functional imaging are inconclusive.

Exercise ECG is only used to confirm the chest pain is caused by myocardial ischemia when ECG is normal.

CHECK ANSWER END SESSION NEXT

Session Statistics

Answered: 137 ✓ **Correct**: 23 ✕ **Incorrect**: 114 **Average Score**: 16.79 %



Question 139 of 291

Question Difficulty: **Hard**

On regular follow up of 81 years old Mr. X he was found to have elevated blood pressure up to 163/98 mmhg. He has past medical history of osteoarthritis and gastritis.

His cardiologist requested serial ABPM which shows BP of 165/102 mmhg. His ECG was normal. His cardiologist started him on nifedipine.

What is the suitable blood pressure target for him?

- ○ **145/85 mmHg**
- ○ **135/85 mmHg**
- ● **125/75 mmHg**
- ○ **140/90 mmHg**
- ○ **150/90 mmHg**

Description

NICE 2013 suggests targeting clinic blood pressure below 140/90 mmHg in people aged under 80 years and below 150/90 mmHg in people aged 80 years and over.

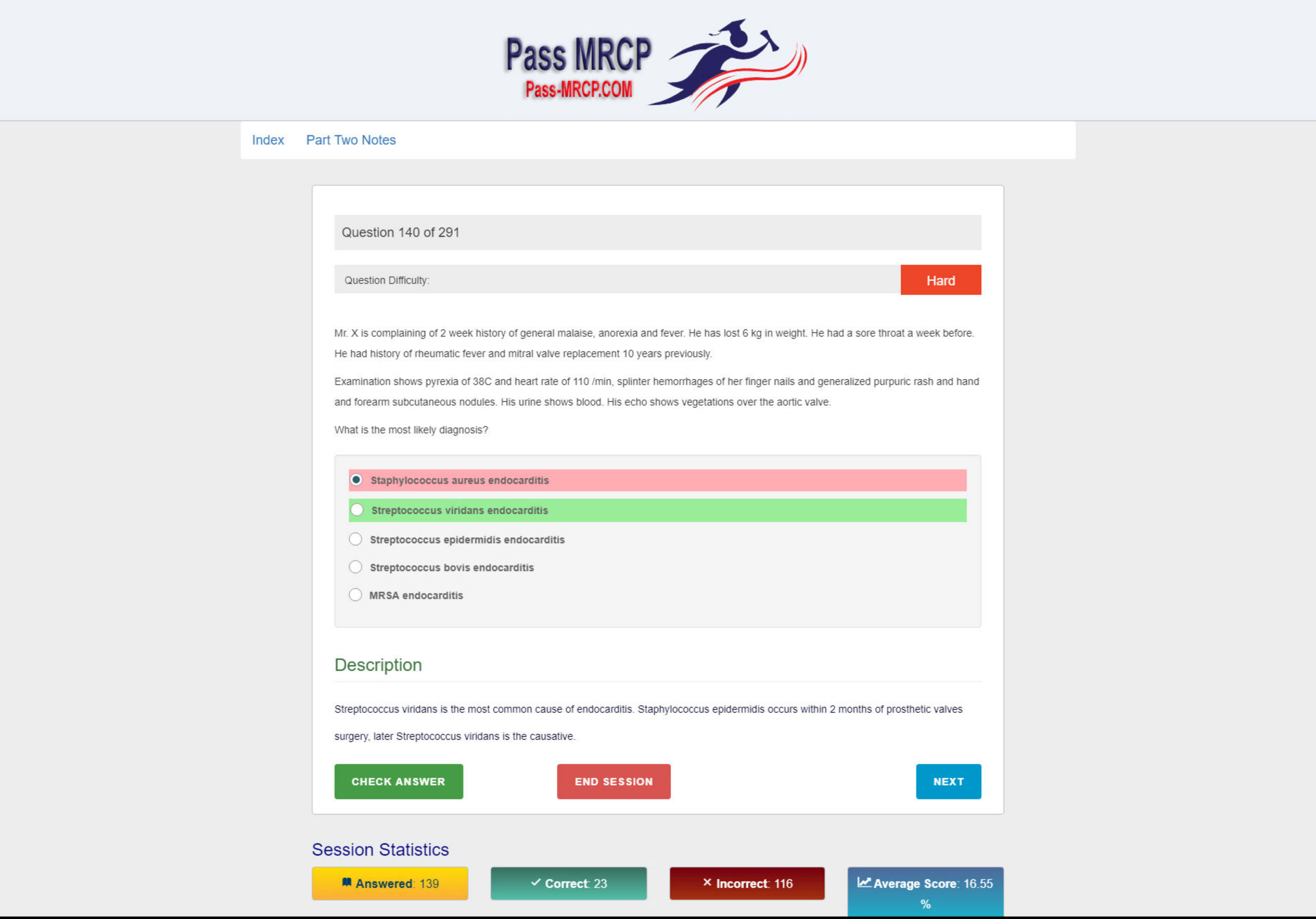
Session Statistics

Answered: 138

✓ **Correct**: 23

× **Incorrect**: 115

Average Score: 16.67 %



Question 140 of 291

Question Difficulty: Hard

Mr. X is complaining of 2 week history of general malaise, anorexia and fever. He has lost 6 kg in weight. He had a sore throat a week before. He had history of rheumatic fever and mitral valve replacement 10 years previously.

Examination shows pyrexia of 38C and heart rate of 110 /min, splinter hemorrhages of her finger nails and generalized purpuric rash and hand and forearm subcutaneous nodules. His urine shows blood. His echo shows vegetations over the aortic valve.

What is the most likely diagnosis?

- ● **Staphylococcus aureus endocarditis**
- ○ **Streptococcus viridans endocarditis**
- ○ **Streptococcus epidermidis endocarditis**
- ○ **Streptococcus bovis endocarditis**
- ○ **MRSA endocarditis**

Description

Streptococcus viridans is the most common cause of endocarditis. Staphylococcus epidermidis occurs within 2 months of prosthetic valves surgery, later Streptococcus viridans is the causative.

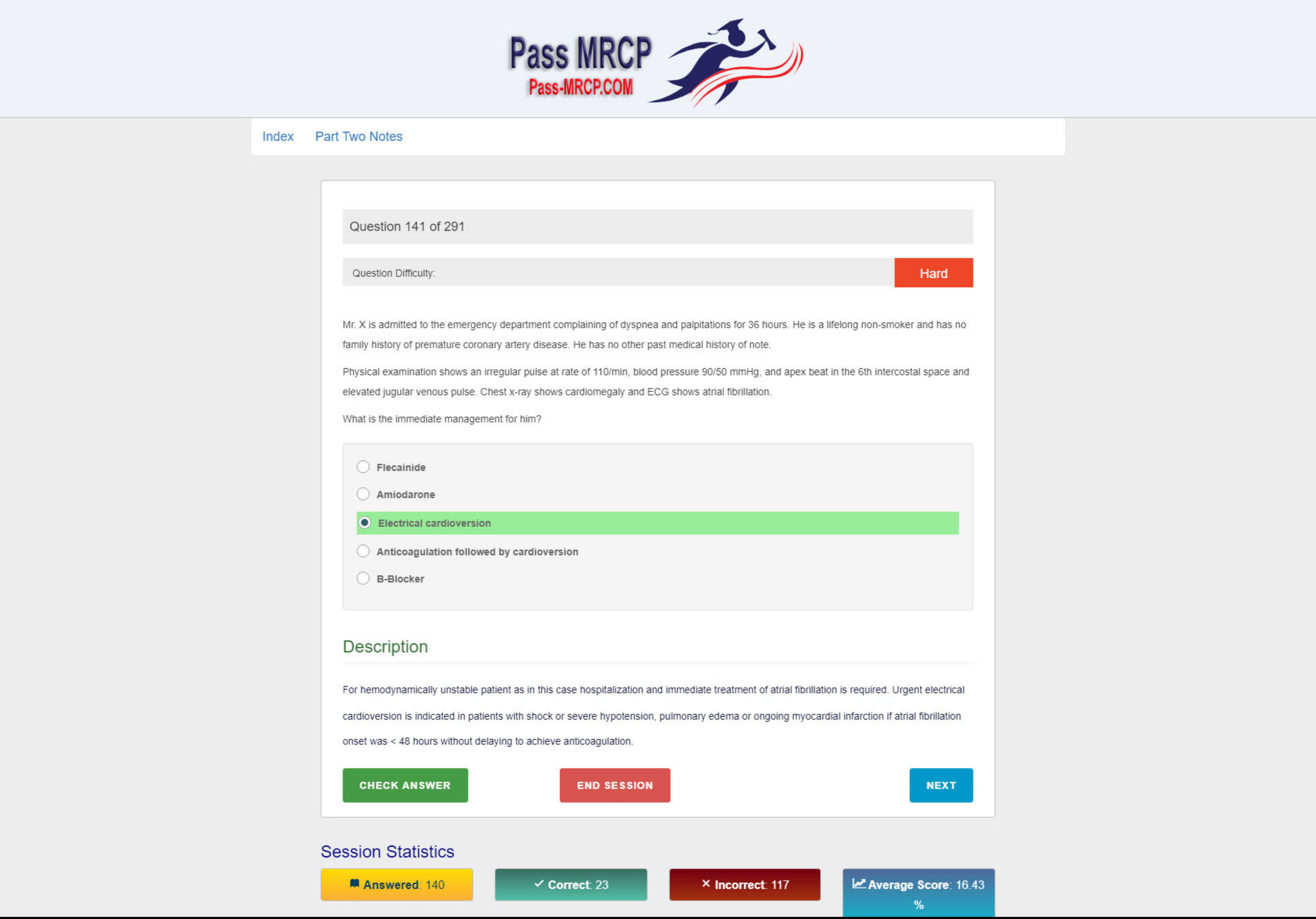
Session Statistics

Answered: 139

✓ **Correct**: 23

× **Incorrect**: 116

Average Score: 16.55 %



Question 141 of 291

Question Difficulty: Hard

Mr. X is admitted to the emergency department complaining of dyspnea and palpitations for 36 hours. He is a lifelong non-smoker and has no family history of premature coronary artery disease. He has no other past medical history of note.

Physical examination shows an irregular pulse at rate of 110/min, blood pressure 90/50 mmHg, and apex beat in the 6th intercostal space and elevated jugular venous pulse. Chest x-ray shows cardiomegaly and ECG shows atrial fibrillation.

What is the immediate management for him?

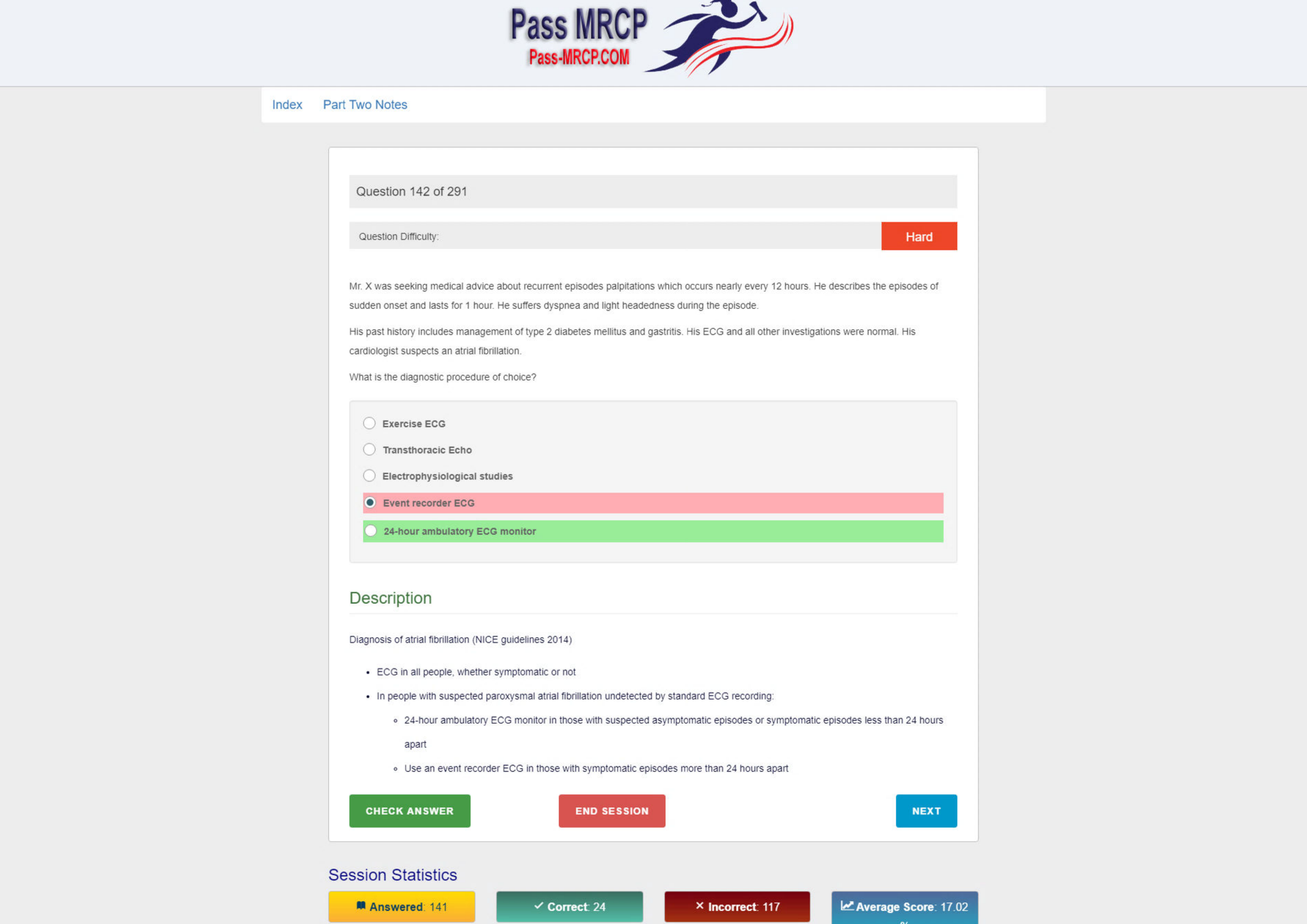
- ○ Flecainide
- ○ Amiodarone
- ● Electrical cardioversion
- ○ Anticoagulation followed by cardioversion
- ○ B-Blocker

Description

For hemodynamically unstable patient as in this case hospitalization and immediate treatment of atrial fibrillation is required. Urgent electrical cardioversion is indicated in patients with shock or severe hypotension, pulmonary edema or ongoing myocardial infarction if atrial fibrillation onset was < 48 hours without delaying to achieve anticoagulation.

Session Statistics

Answered: 140
✓ Correct: 23
× Incorrect: 117
Average Score: 16.43 %



Question 142 of 291

Question Difficulty: **Hard**

Mr. X was seeking medical advice about recurrent episodes palpitations which occurs nearly every 12 hours. He describes the episodes of sudden onset and lasts for 1 hour. He suffers dyspnea and light headedness during the episode.

His past history includes management of type 2 diabetes mellitus and gastritis. His ECG and all other investigations were normal. His cardiologist suspects an atrial fibrillation.

What is the diagnostic procedure of choice?

○ **Exercise ECG**
○ **Transthoracic Echo**
○ **Electrophysiological studies**
● **Event recorder ECG**
○ **24-hour ambulatory ECG monitor**

Description

Diagnosis of atrial fibrillation (NICE guidelines 2014)

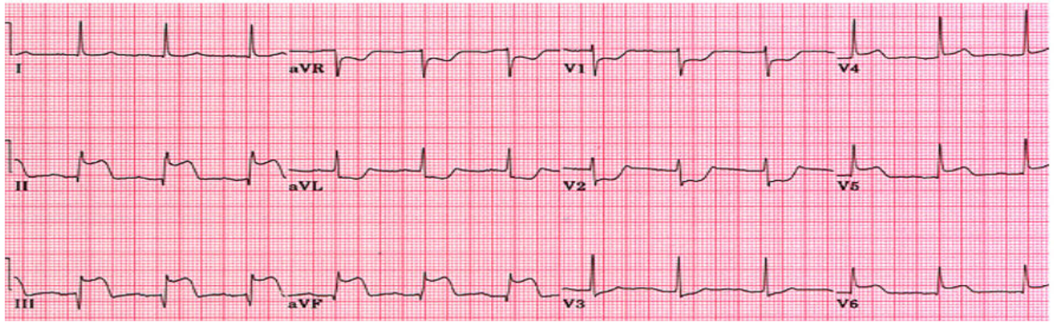
- ECG in all people, whether symptomatic or not
- In people with suspected paroxysmal atrial fibrillation undetected by standard ECG recording:
  - 24-hour ambulatory ECG monitor in those with suspected asymptomatic episodes or symptomatic episodes less than 24 hours apart
  - Use an event recorder ECG in those with symptomatic episodes more than 24 hours apart

Session Statistics

Question 143 of 291

Question Difficulty: **Hard**

Mr. X the 60 years old was admitted to the emergency room due to central crushing chest pain which started 1 hour ago. He describes the pain is radiated to his jaws. His ECG shows in the following image.



Which coronary artery is usually obstructed?

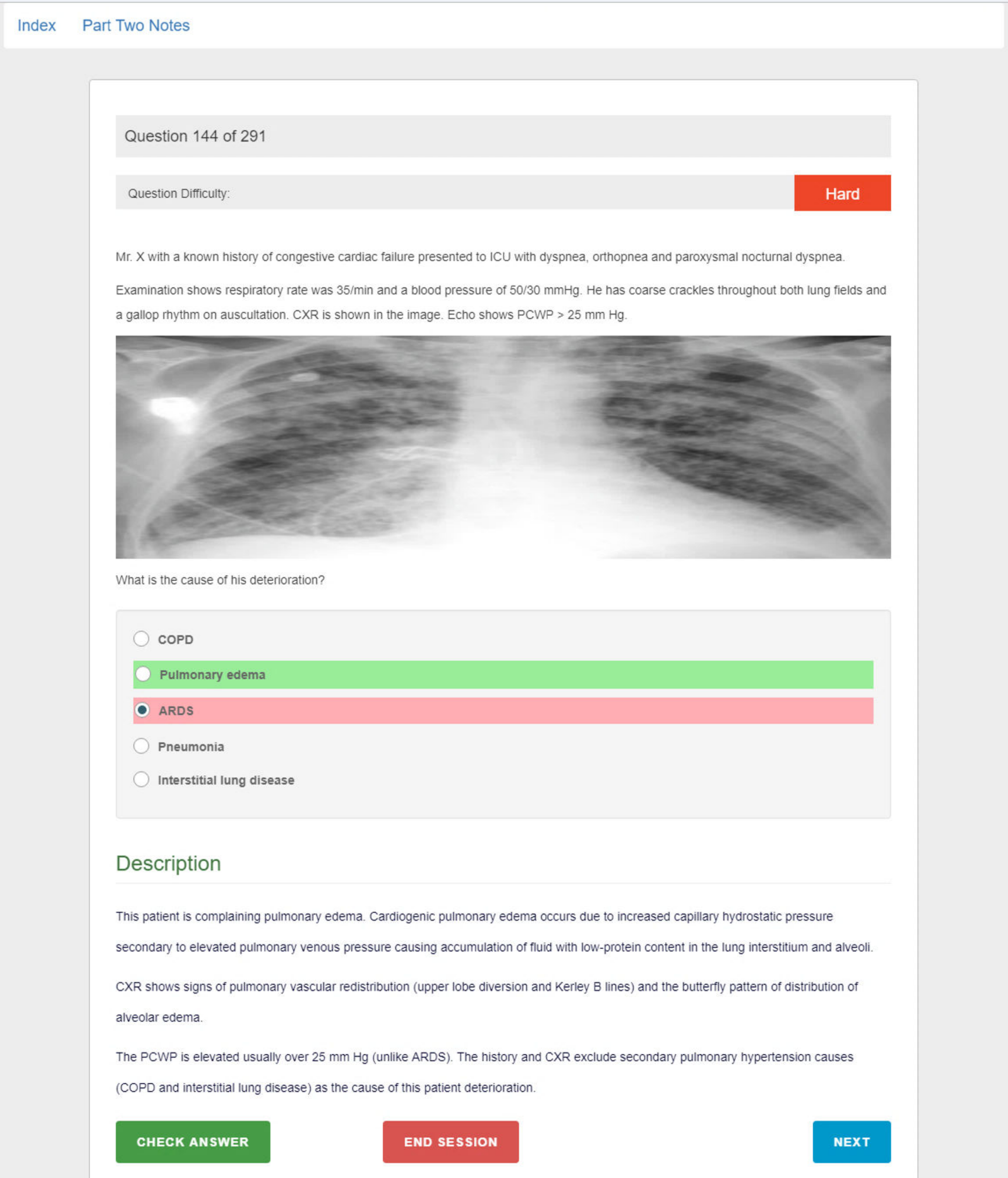
- ● Right posterior descending artery
- ○ Left main stem artery
- ○ Left anterior descending artery
- ○ Right coronary artery
- ○ Left circumflex artery

Description

Right coronary artery obstruction causes inferior wall MI which causes ST elevation in II, III, aVF as in the image.

CHECK ANSWER END SESSION NEXT

Session Statistics



Question 144 of 291

Question Difficulty: Hard

Mr. X with a known history of congestive cardiac failure presented to ICU with dyspnea, orthopnea and paroxysmal nocturnal dyspnea.

Examination shows respiratory rate was 35/min and a blood pressure of 50/30 mmHg. He has coarse crackles throughout both lung fields and a gallop rhythm on auscultation. CXR is shown in the image. Echo shows PCWP > 25 mm Hg.

What is the cause of his deterioration?

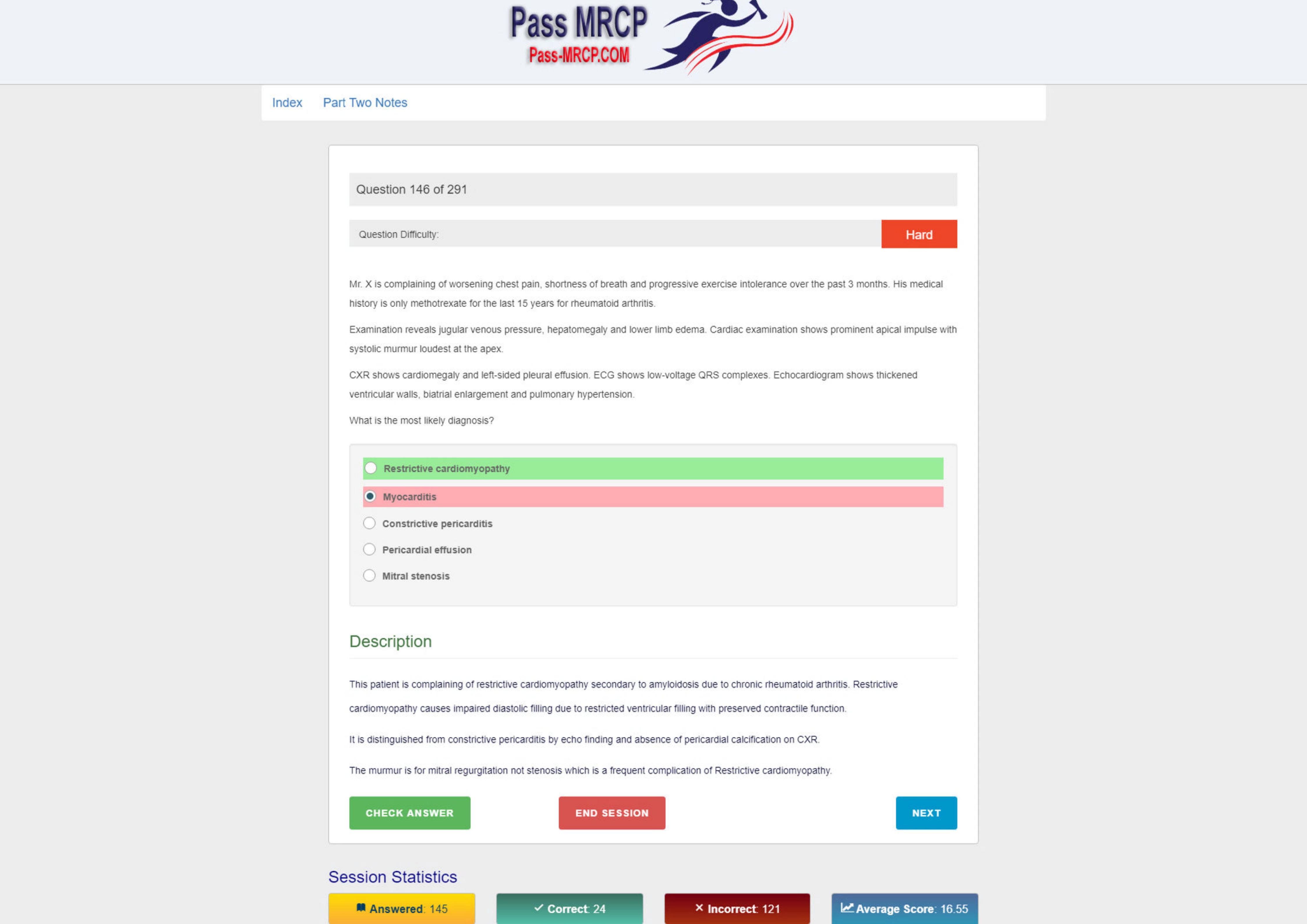
○ COPD
○ Pulmonary edema
● ARDS
○ Pneumonia
○ Interstitial lung disease

Description

This patient is complaining pulmonary edema. Cardiogenic pulmonary edema occurs due to increased capillary hydrostatic pressure secondary to elevated pulmonary venous pressure causing accumulation of fluid with low-protein content in the lung interstitium and alveoli.

CXR shows signs of pulmonary vascular redistribution (upper lobe diversion and Kerley B lines) and the butterfly pattern of distribution of alveolar edema.

The PCWP is elevated usually over 25 mm Hg (unlike ARDS). The history and CXR exclude secondary pulmonary hypertension causes (COPD and interstitial lung disease) as the cause of this patient deterioration.



Question 146 of 291

Question Difficulty: Hard

Mr. X is complaining of worsening chest pain, shortness of breath and progressive exercise intolerance over the past 3 months. His medical history is only methotrexate for the last 15 years for rheumatoid arthritis.

Examination reveals jugular venous pressure, hepatomegaly and lower limb edema. Cardiac examination shows prominent apical impulse with systolic murmur loudest at the apex.

CXR shows cardiomegaly and left-sided pleural effusion. ECG shows low-voltage QRS complexes. Echocardiogram shows thickened ventricular walls, biatrial enlargement and pulmonary hypertension.

What is the most likely diagnosis?

- ○ **Restrictive cardiomyopathy**
- ● **Myocarditis**
- ○ **Constrictive pericarditis**
- ○ **Pericardial effusion**
- ○ **Mitral stenosis**

Description

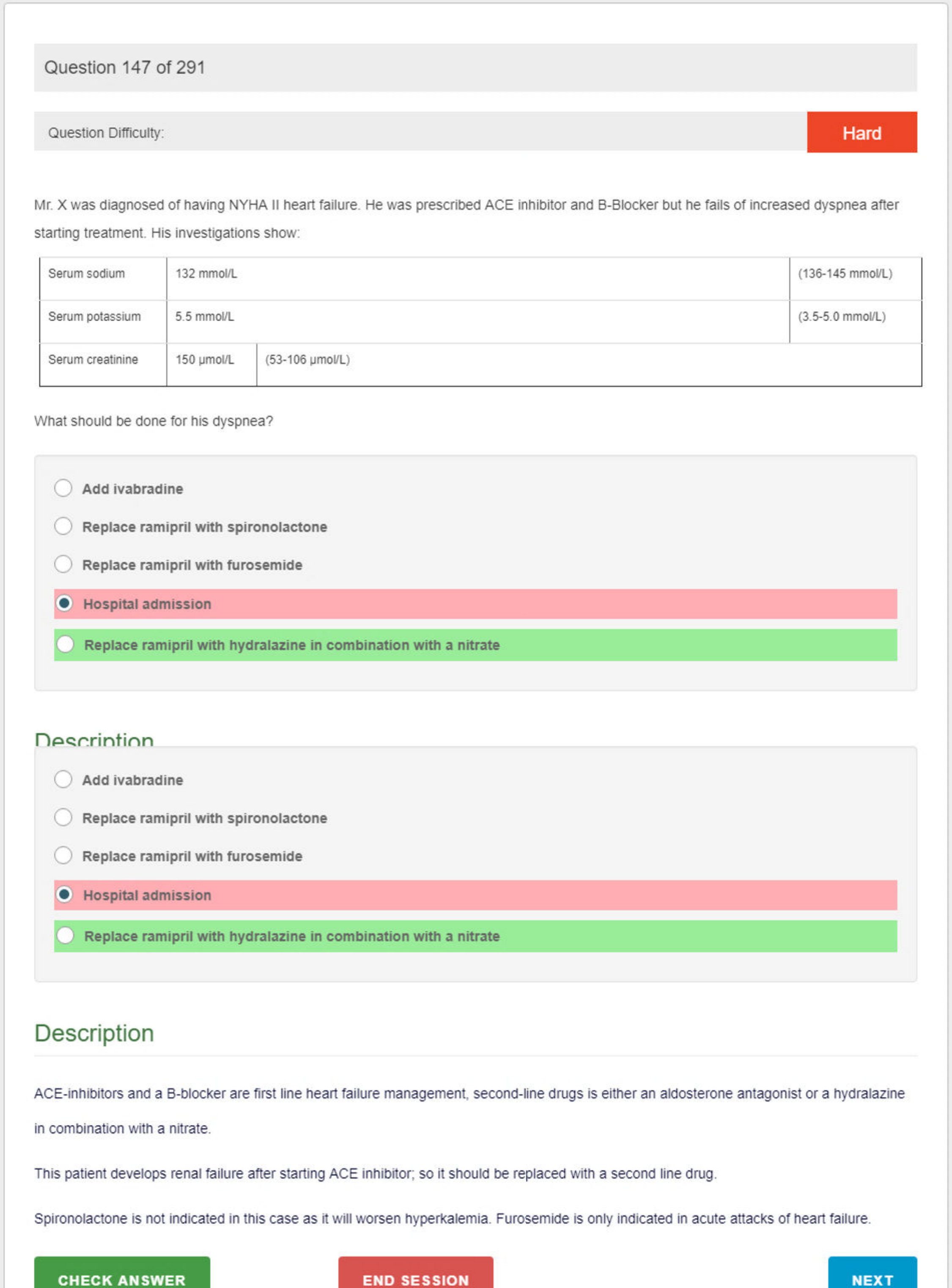
This patient is complaining of restrictive cardiomyopathy secondary to amyloidosis due to chronic rheumatoid arthritis. Restrictive cardiomyopathy causes impaired diastolic filling due to restricted ventricular filling with preserved contractile function.

It is distinguished from constrictive pericarditis by echo finding and absence of pericardial calcification on CXR.

The murmur is for mitral regurgitation not stenosis which is a frequent complication of Restrictive cardiomyopathy.

Session Statistics

Answered: 145
Correct: 24
Incorrect: 121
Average Score: 16.55



Question 147 of 291

Mr. X was diagnosed of having NYHA II heart failure. He was prescribed ACE inhibitor and B-Blocker but he fails of increased dyspnea after starting treatment. His investigations show:

Serum sodium	132 mmol/L	(136-145 mmol/L)
Serum potassium	5.5 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	150 µmol/L	(53-106 µmol/L)

What should be done for his dyspnea?

○ Add ivabradine
○ Replace ramipril with spironolactone
○ Replace ramipril with furosemide
● Hospital admission
○ Replace ramipril with hydralazine in combination with a nitrate

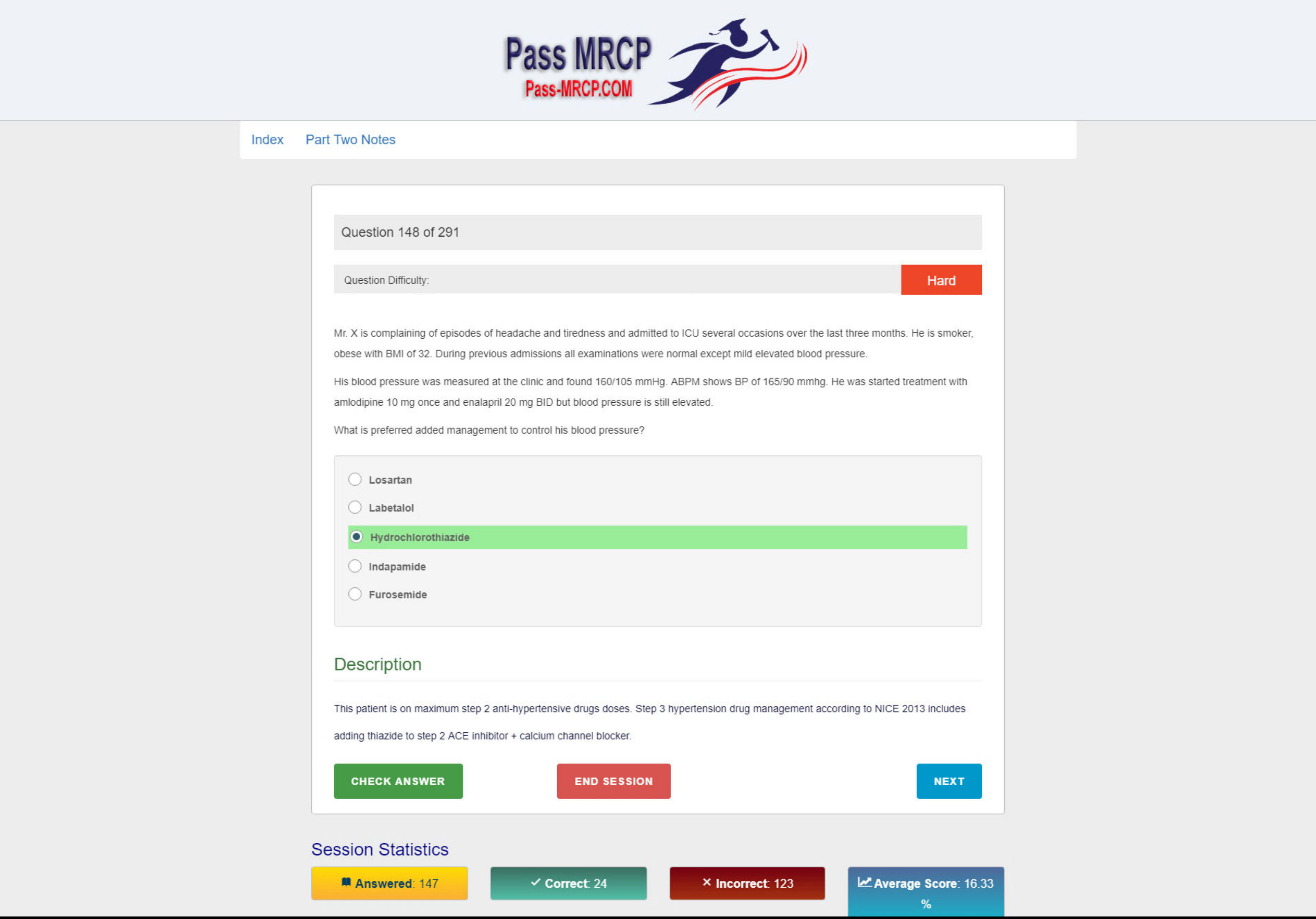
○ Add ivabradine
○ Replace ramipril with spironolactone
○ Replace ramipril with furosemide
● Hospital admission
○ Replace ramipril with hydralazine in combination with a nitrate

Description

ACE-inhibitors and a B-blocker are first line heart failure management, second-line drugs is either an aldosterone antagonist or a hydralazine in combination with a nitrate.

This patient develops renal failure after starting ACE inhibitor; so it should be replaced with a second line drug.

Spironolactone is not indicated in this case as it will worsen hyperkalemia. Furosemide is only indicated in acute attacks of heart failure.



Question 148 of 291

Question Difficulty: Hard

Mr. X is complaining of episodes of headache and tiredness and admitted to ICU several occasions over the last three months. He is smoker, obese with BMI of 32. During previous admissions all examinations were normal except mild elevated blood pressure.

His blood pressure was measured at the clinic and found 160/105 mmHg. ABPM shows BP of 165/90 mmhg. He was started treatment with amlodipine 10 mg once and enalapril 20 mg BID but blood pressure is still elevated.

What is preferred added management to control his blood pressure?

- ○ **Losartan**
- ○ **Labetalol**
- ● **Hydrochlorothiazide**
- ○ **Indapamide**
- ○ **Furosemide**

Description

This patient is on maximum step 2 anti-hypertensive drugs doses. Step 3 hypertension drug management according to NICE 2013 includes adding thiazide to step 2 ACE inhibitor + calcium channel blocker.

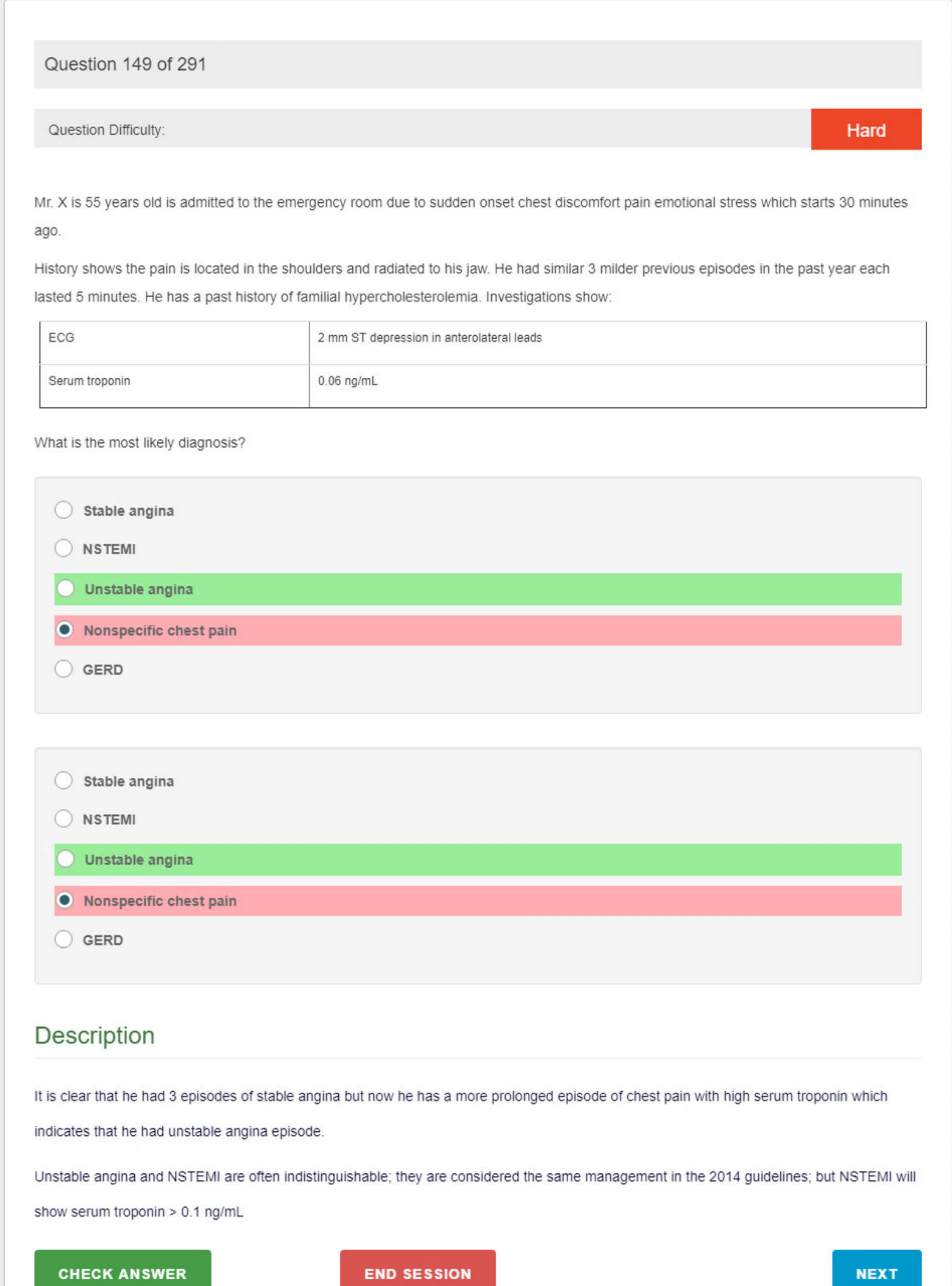
Session Statistics

Answered: 147

✓ **Correct**: 24

× **Incorrect**: 123

Average Score: 16.33 %



Question 149 of 291

Question Difficulty: **Hard**

Mr. X is 55 years old is admitted to the emergency room due to sudden onset chest discomfort pain emotional stress which starts 30 minutes ago.

History shows the pain is located in the shoulders and radiated to his jaw. He had similar 3 milder previous episodes in the past year each lasted 5 minutes. He has a past history of familial hypercholesterolemia. Investigations show:

ECG	2 mm ST depression in anterolateral leads
Serum troponin	0.06 ng/mL

What is the most likely diagnosis?

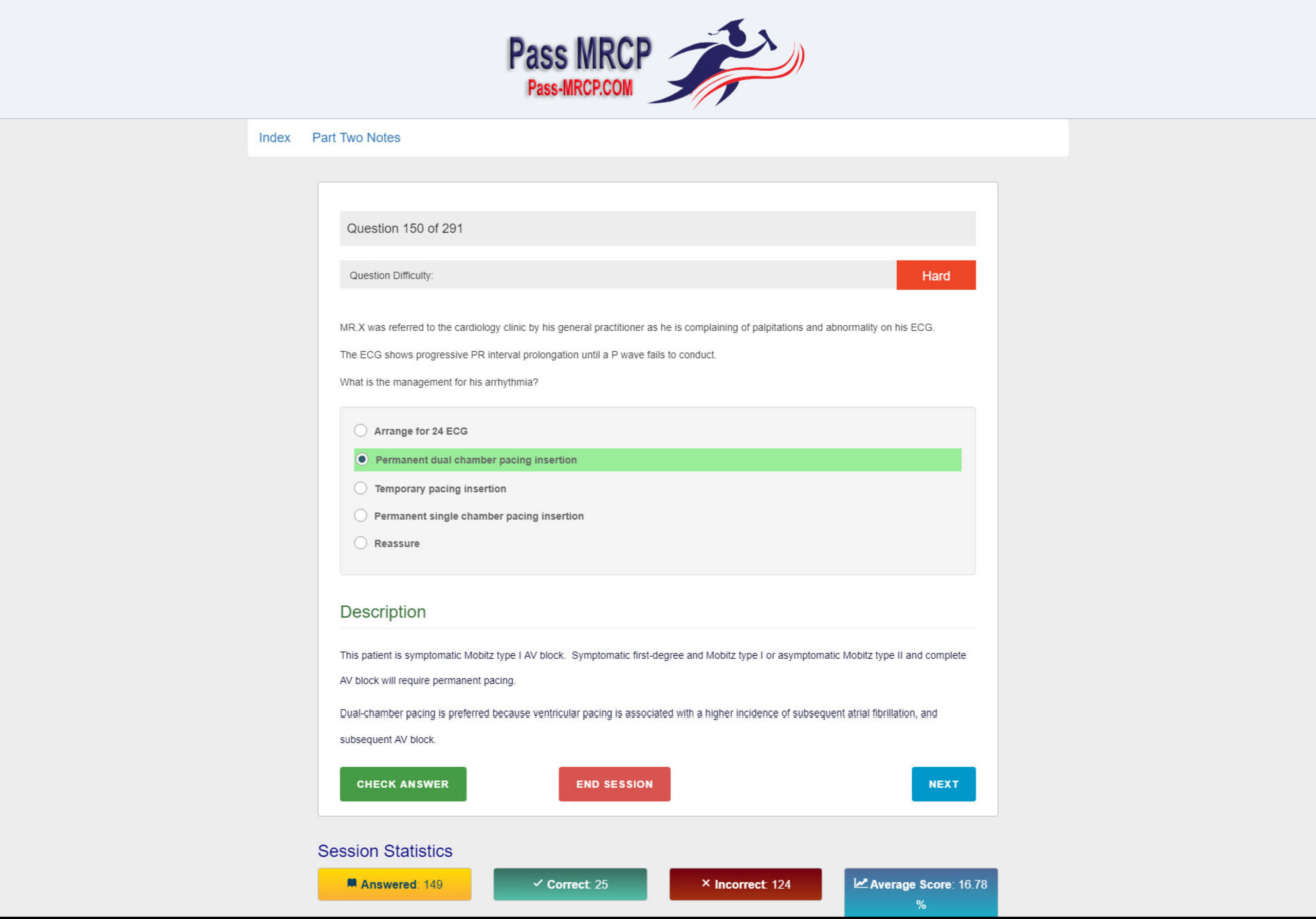
- ○ **Stable angina**
- ○ **NSTEMI**
- ○ **Unstable angina**
- ● **Nonspecific chest pain**
- ○ **GERD**

- ○ **Stable angina**
- ○ **NSTEMI**
- ○ **Unstable angina**
- ● **Nonspecific chest pain**
- ○ **GERD**

Description

It is clear that he had 3 episodes of stable angina but now he has a more prolonged episode of chest pain with high serum troponin which indicates that he had unstable angina episode.

Unstable angina and NSTEMI are often indistinguishable; they are considered the same management in the 2014 guidelines; but NSTEMI will show serum troponin > 0.1 ng/mL



Question 150 of 291

Question Difficulty: Hard

MR.X was referred to the cardiology clinic by his general practitioner as he is complaining of palpitations and abnormality on his ECG.

The ECG shows progressive PR interval prolongation until a P wave fails to conduct.

What is the management for his arrhythmia?

○ **Arrange for 24 ECG**
● **Permanent dual chamber pacing insertion**
○ **Temporary pacing insertion**
○ **Permanent single chamber pacing insertion**
○ **Reassure**

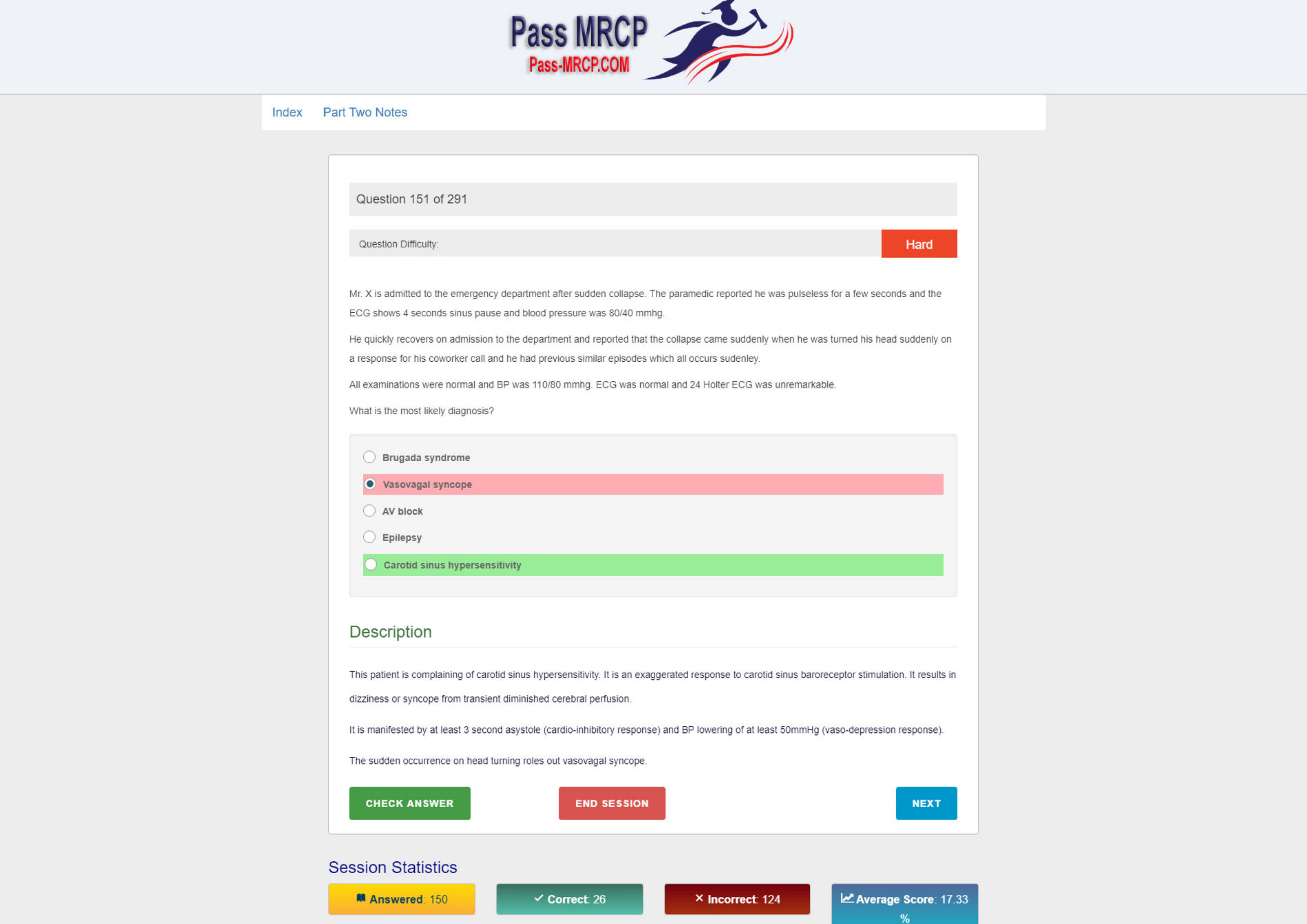
Description

This patient is symptomatic Mobitz type I AV block. Symptomatic first-degree and Mobitz type I or asymptomatic Mobitz type II and complete AV block will require permanent pacing.

Dual-chamber pacing is preferred because ventricular pacing is associated with a higher incidence of subsequent atrial fibrillation, and subsequent AV block.

Session Statistics

Answered: 149
✓ **Correct**: 25
✕ **Incorrect**: 124
Average Score: 16.78 %



Question 151 of 291

Question Difficulty: Hard

Mr. X is admitted to the emergency department after sudden collapse. The paramedic reported he was pulseless for a few seconds and the ECG shows 4 seconds sinus pause and blood pressure was 80/40 mmhg.

He quickly recovers on admission to the department and reported that the collapse came suddenly when he was turned his head suddenly on a response for his coworker call and he had previous similar episodes which all occurs sudenley.

All examinations were normal and BP was 110/80 mmhg. ECG was normal and 24 Holter ECG was unremarkable.

What is the most likely diagnosis?

- ○ **Brugada syndrome**
- ● **Vasovagal syncope**
- ○ **AV block**
- ○ **Epilepsy**
- ○ **Carotid sinus hypersensitivity**

Description

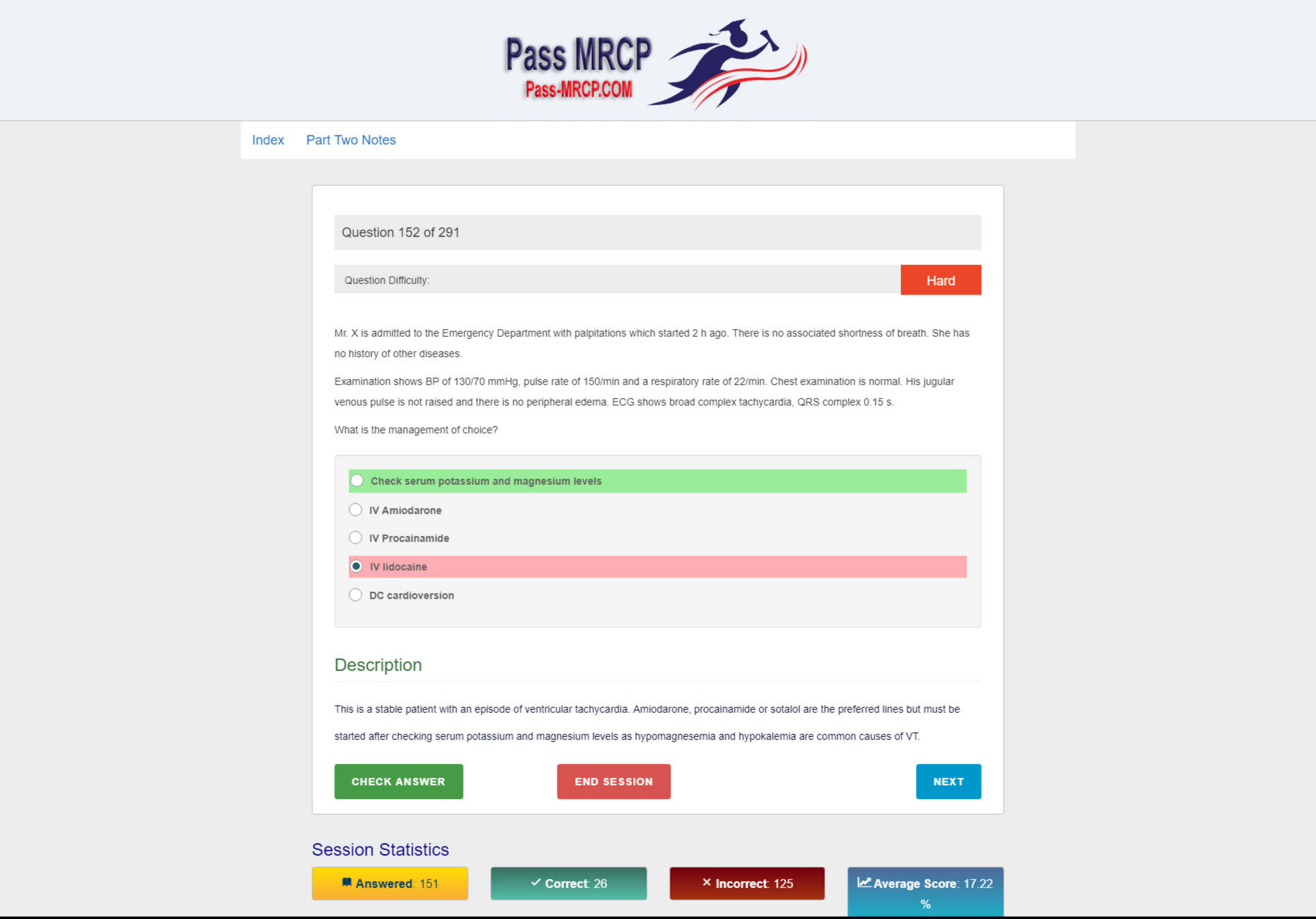
This patient is complaining of carotid sinus hypersensitivity. It is an exaggerated response to carotid sinus baroreceptor stimulation. It results in dizziness or syncope from transient diminished cerebral perfusion.

It is manifested by at least 3 second asystole (cardio-inhibitory response) and BP lowering of at least 50mmHg (vaso-depression response).

The sudden occurrence on head turning roles out vasovagal syncope.

Session Statistics

Answered: 150
✓ **Correct**: 26
✕ **Incorrect**: 124
Average Score: 17.33 %



Question 152 of 291

Question Difficulty: Hard

Mr. X is admitted to the Emergency Department with palpitations which started 2 h ago. There is no associated shortness of breath. She has no history of other diseases.

Examination shows BP of 130/70 mmHg, pulse rate of 150/min and a respiratory rate of 22/min. Chest examination is normal. His jugular venous pulse is not raised and there is no peripheral edema. ECG shows broad complex tachycardia, QRS complex 0.15 s.

What is the management of choice?

- ○ **Check serum potassium and magnesium levels**
- ○ **IV Amiodarone**
- ○ **IV Procainamide**
- ● **IV lidocaine**
- ○ **DC cardioversion**

Description

This is a stable patient with an episode of ventricular tachycardia. Amiodarone, procainamide or sotalol are the preferred lines but must be started after checking serum potassium and magnesium levels as hypomagnesemia and hypokalemia are common causes of VT.

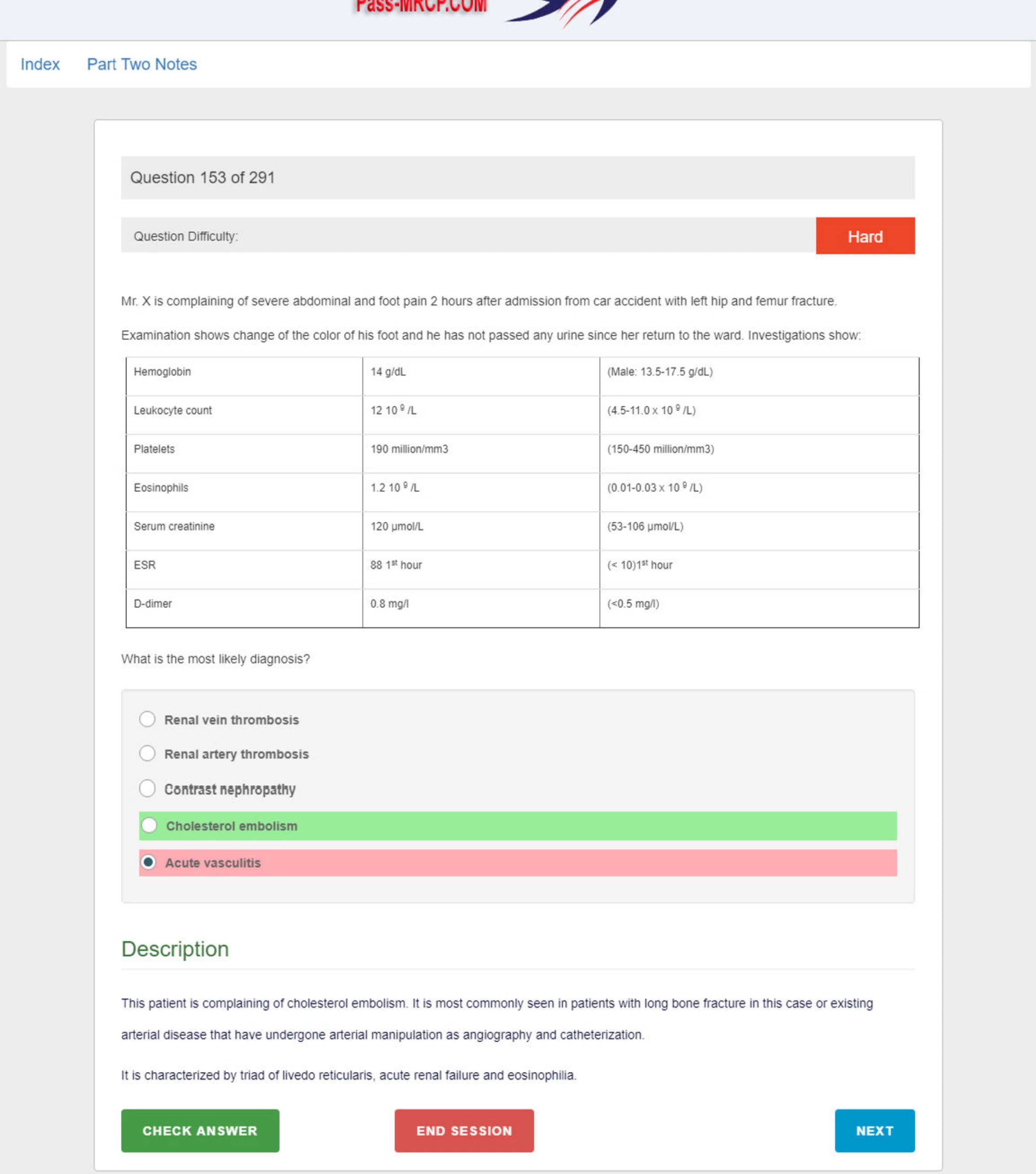
Session Statistics

Answered: 151

✓ **Correct**: 26

✕ **Incorrect**: 125

Average Score: 17.22 %



Question 153 of 291

Question Difficulty:

Mr. X is complaining of severe abdominal and foot pain 2 hours after admission from car accident with left hip and femur fracture.

Examination shows change of the color of his foot and he has not passed any urine since her return to the ward. Investigations show:

Hemoglobin	14 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	12 10^{9}/L	(4.5-11.0 x 10^{9}/L)
Platelets	190 million/mm3	(150-450 million/mm3)
Eosinophils	1.2 10^{9}/L	(0.01-0.03 x 10^{9}/L)
Serum creatinine	120 µmol/L	(53-106 µmol/L)
ESR	88 1st hour	(< 10)1st hour
D-dimer	0.8 mg/l	(<0.5 mg/l)

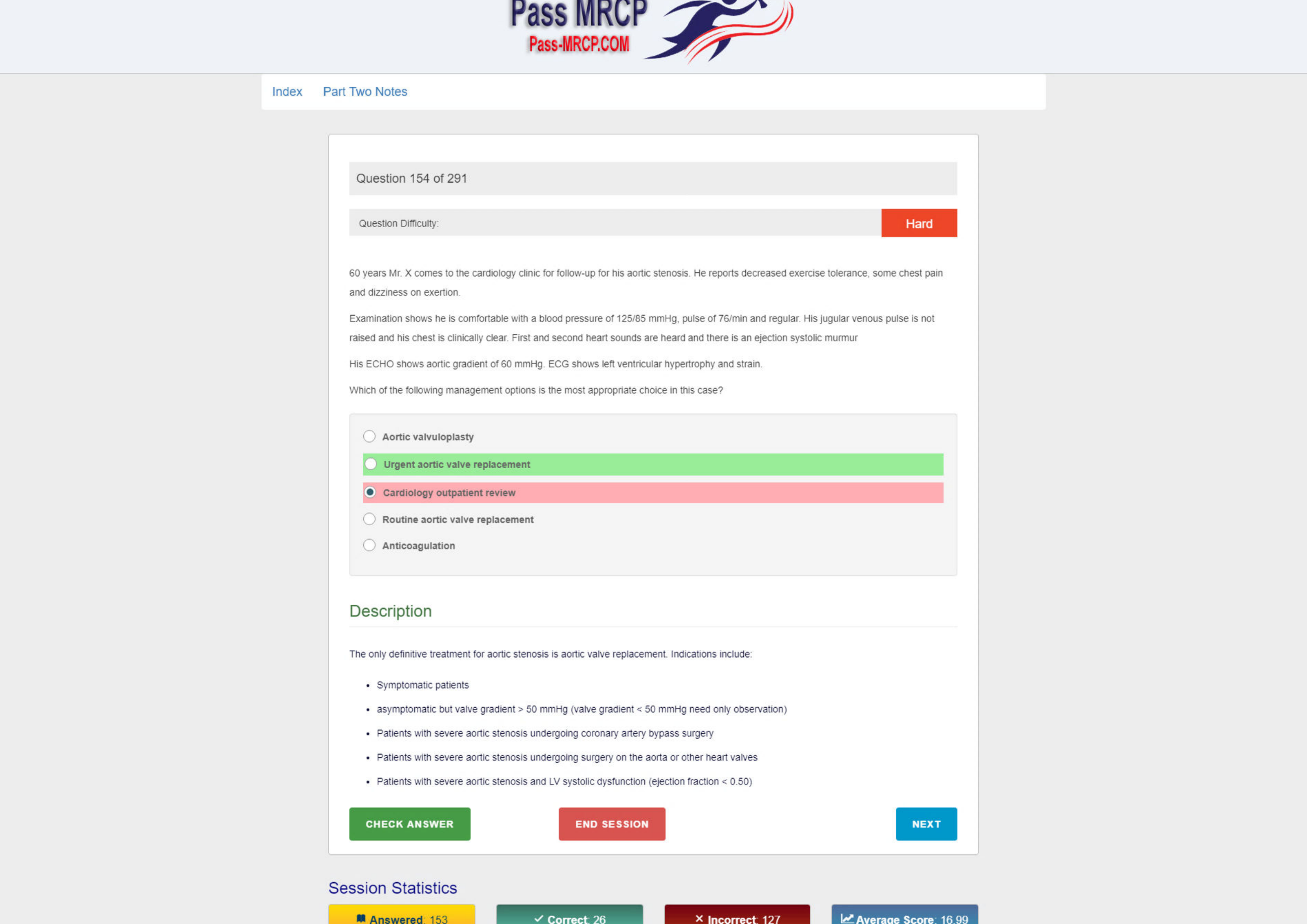
What is the most likely diagnosis?

- ○ **Renal vein thrombosis**
- ○ **Renal artery thrombosis**
- ○ **Contrast nephropathy**
- ○ **Cholesterol embolism**
- ● **Acute vasculitis**

Description

This patient is complaining of cholesterol embolism. It is most commonly seen in patients with long bone fracture in this case or existing arterial disease that have undergone arterial manipulation as angiography and catheterization.

It is characterized by triad of livedo reticularis, acute renal failure and eosinophilia.



Question 154 of 291

Question Difficulty: Hard

60 years Mr. X comes to the cardiology clinic for follow-up for his aortic stenosis. He reports decreased exercise tolerance, some chest pain and dizziness on exertion.

Examination shows he is comfortable with a blood pressure of 125/85 mmHg, pulse of 76/min and regular. His jugular venous pulse is not raised and his chest is clinically clear. First and second heart sounds are heard and there is an ejection systolic murmur

His ECHO shows aortic gradient of 60 mmHg. ECG shows left ventricular hypertrophy and strain.

Which of the following management options is the most appropriate choice in this case?

○ Aortic valvuloplasty
○ Urgent aortic valve replacement
● Cardiology outpatient review
○ Routine aortic valve replacement
○ Anticoagulation

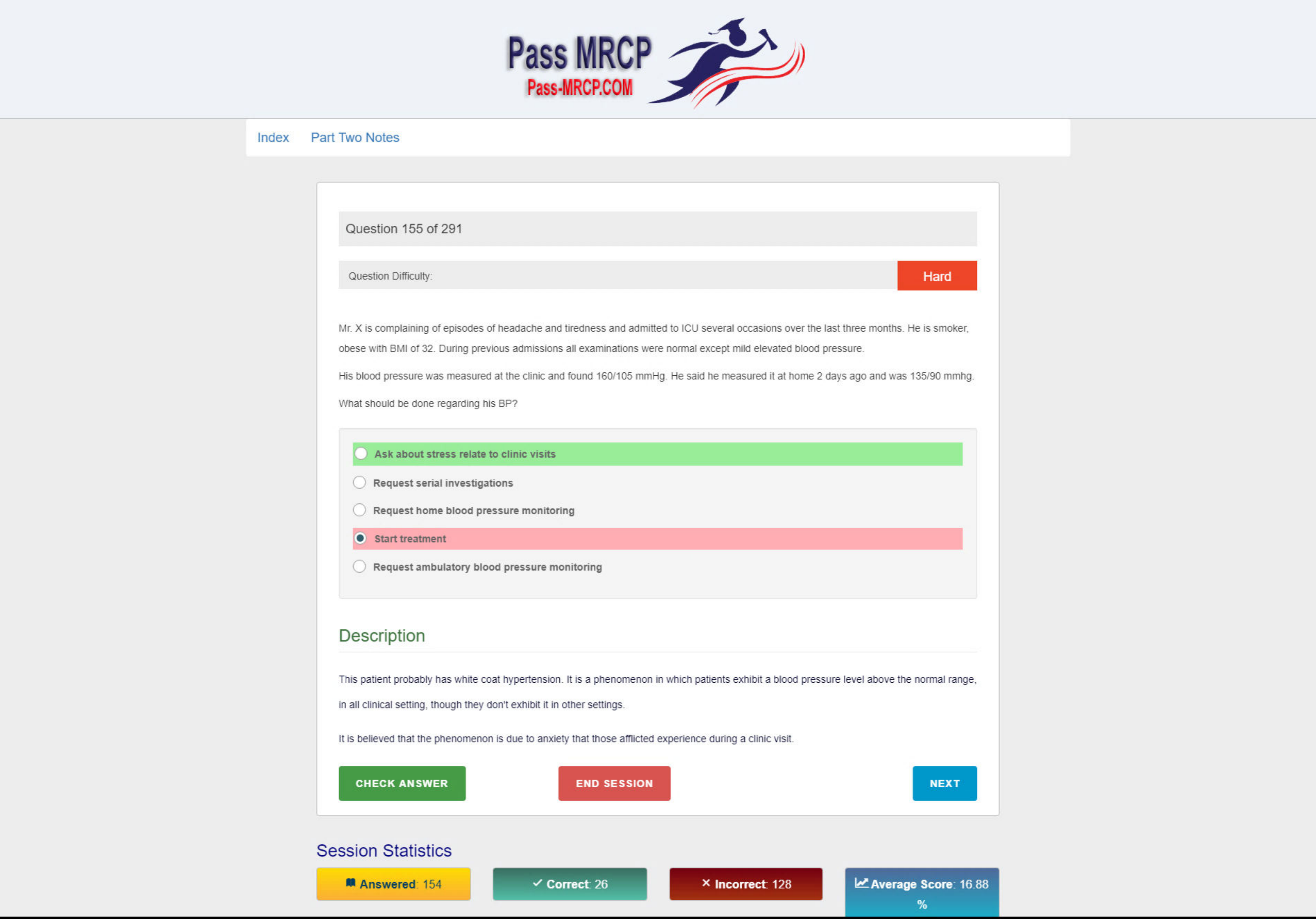
Description

The only definitive treatment for aortic stenosis is aortic valve replacement. Indications include:

- Symptomatic patients
- asymptomatic but valve gradient > 50 mmHg (valve gradient < 50 mmHg need only observation)
- Patients with severe aortic stenosis undergoing coronary artery bypass surgery
- Patients with severe aortic stenosis undergoing surgery on the aorta or other heart valves
- Patients with severe aortic stenosis and LV systolic dysfunction (ejection fraction < 0.50)

Session Statistics

Answered: 153
✓ Correct: 26
✕ Incorrect: 127
Average Score: 16.99



Question 155 of 291

Question Difficulty: **Hard**

Mr. X is complaining of episodes of headache and tiredness and admitted to ICU several occasions over the last three months. He is smoker, obese with BMI of 32. During previous admissions all examinations were normal except mild elevated blood pressure.

His blood pressure was measured at the clinic and found 160/105 mmHg. He said he measured it at home 2 days ago and was 135/90 mmhg.

What should be done regarding his BP?

- ○ **Ask about stress relate to clinic visits**
- ○ **Request serial investigations**
- ○ **Request home blood pressure monitoring**
- ● **Start treatment**
- ○ **Request ambulatory blood pressure monitoring**

Description

This patient probably has white coat hypertension. It is a phenomenon in which patients exhibit a blood pressure level above the normal range, in all clinical setting, though they don't exhibit it in other settings.

It is believed that the phenomenon is due to anxiety that those afflicted experience during a clinic visit.

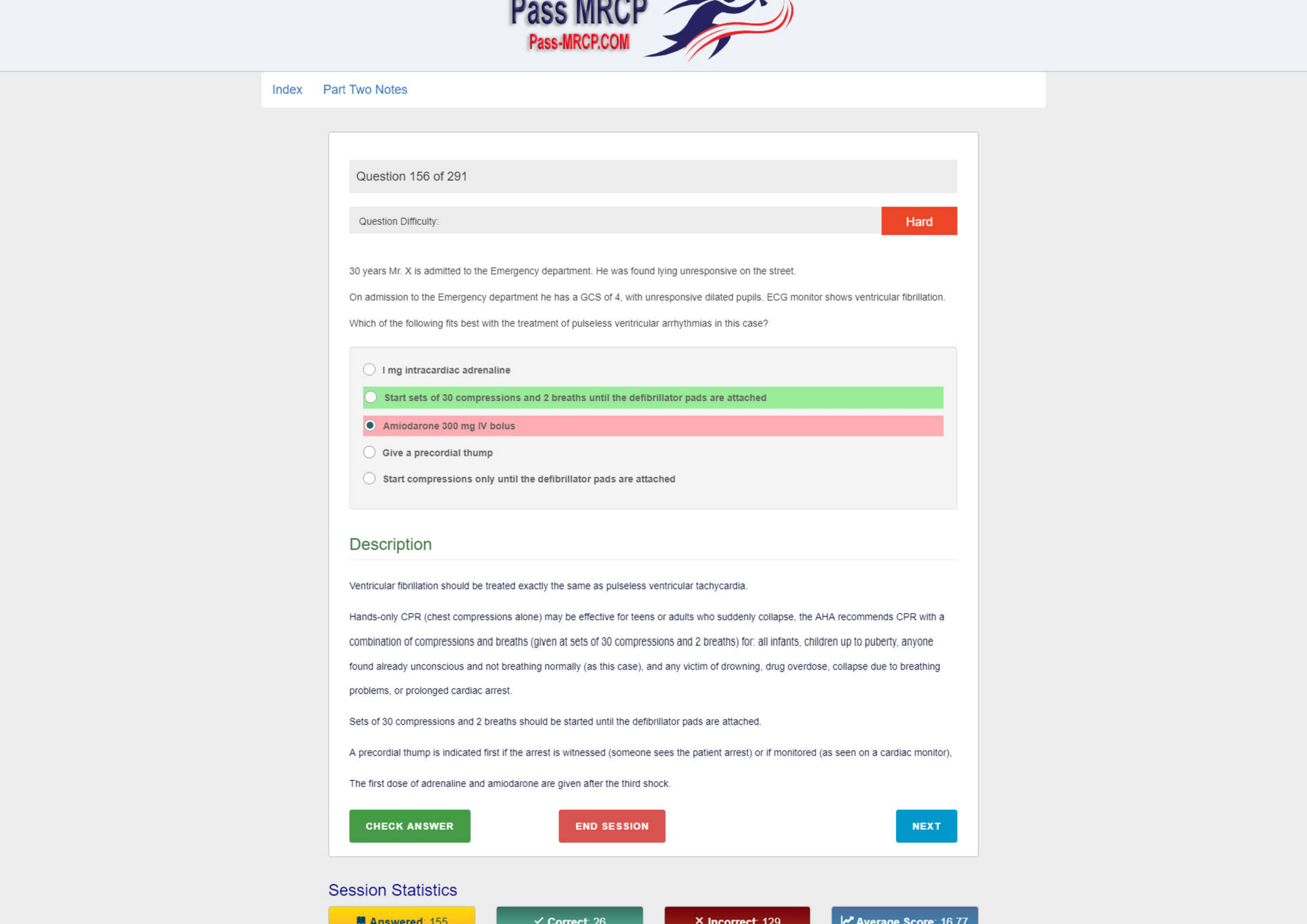
Session Statistics

Answered: 154

✓ **Correct**: 26

× **Incorrect**: 128

Average Score: 16.88 %



Question 156 of 291

Question Difficulty: Hard

30 years Mr. X is admitted to the Emergency department. He was found lying unresponsive on the street.

On admission to the Emergency department he has a GCS of 4, with unresponsive dilated pupils. ECG monitor shows ventricular fibrillation.

Which of the following fits best with the treatment of pulseless ventricular arrhythmias in this case?

○ **I mg intracardiac adrenaline**

○ **Start sets of 30 compressions and 2 breaths until the defibrillator pads are attached**

● **Amiodarone 300 mg IV bolus**

○ **Give a precordial thump**

○ **Start compressions only until the defibrillator pads are attached**

Description

Ventricular fibrillation should be treated exactly the same as pulseless ventricular tachycardia.

Hands-only CPR (chest compressions alone) may be effective for teens or adults who suddenly collapse, the AHA recommends CPR with a combination of compressions and breaths (given at sets of 30 compressions and 2 breaths) for: all infants, children up to puberty, anyone found already unconscious and not breathing normally (as this case), and any victim of drowning, drug overdose, collapse due to breathing problems, or prolonged cardiac arrest.

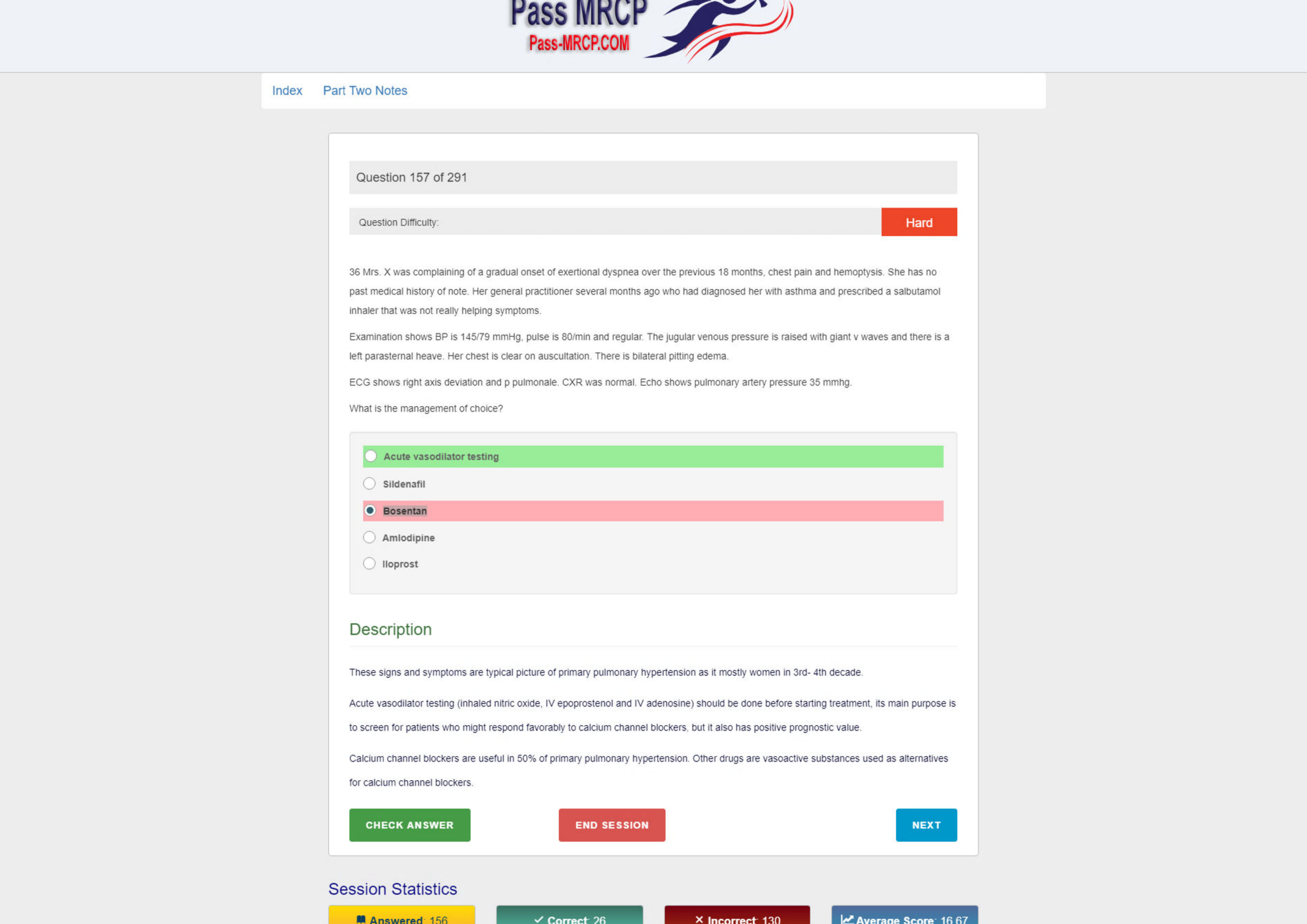
Sets of 30 compressions and 2 breaths should be started until the defibrillator pads are attached.

A precordial thump is indicated first if the arrest is witnessed (someone sees the patient arrest) or if monitored (as seen on a cardiac monitor),

The first dose of adrenaline and amiodarone are given after the third shock.

Session Statistics

Answered: 155
Correct: 26
Incorrect: 129
Average Score: 16.77



Question 157 of 291

Question Difficulty: **Hard**

36 Mrs. X was complaining of a gradual onset of exertional dyspnea over the previous 18 months, chest pain and hemoptysis. She has no past medical history of note. Her general practitioner several months ago who had diagnosed her with asthma and prescribed a salbutamol inhaler that was not really helping symptoms.

Examination shows BP is 145/79 mmHg, pulse is 80/min and regular. The jugular venous pressure is raised with giant v waves and there is a left parasternal heave. Her chest is clear on auscultation. There is bilateral pitting edema.

ECG shows right axis deviation and p pulmonale. CXR was normal. Echo shows pulmonary artery pressure 35 mmhg.

What is the management of choice?

- ○ **Acute vasodilator testing**
- ○ **Sildenafil**
- ● **Bosentan**
- ○ **Amlodipine**
- ○ **Iloprost**

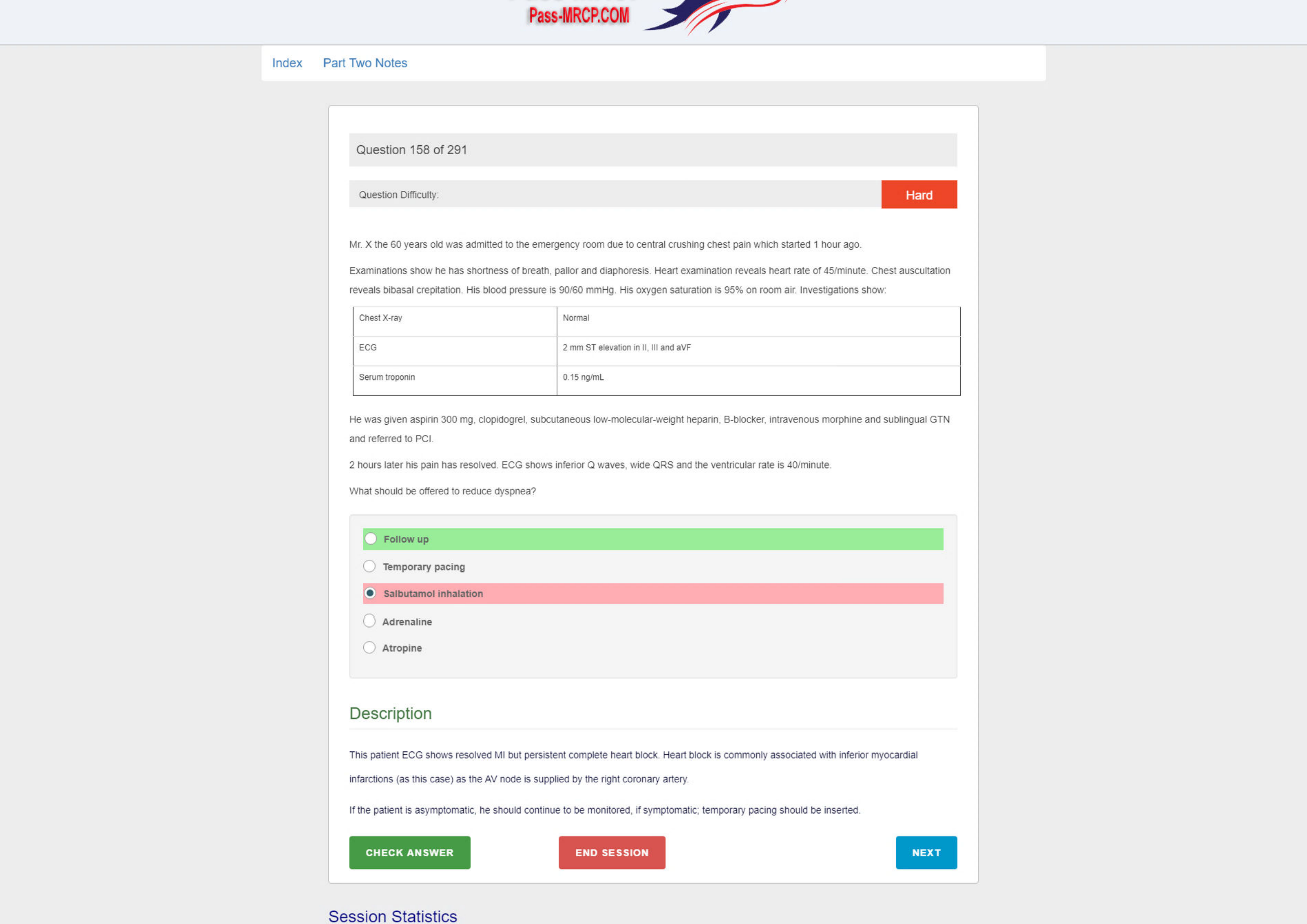
Description

These signs and symptoms are typical picture of primary pulmonary hypertension as it mostly women in 3rd- 4th decade.

Acute vasodilator testing (inhaled nitric oxide, IV epoprostenol and IV adenosine) should be done before starting treatment, its main purpose is to screen for patients who might respond favorably to calcium channel blockers, but it also has positive prognostic value.

Calcium channel blockers are useful in 50% of primary pulmonary hypertension. Other drugs are vasoactive substances used as alternatives for calcium channel blockers.

Session Statistics



Question 158 of 291

Question Difficulty: Hard

Mr. X the 60 years old was admitted to the emergency room due to central crushing chest pain which started 1 hour ago.

Examinations show he has shortness of breath, pallor and diaphoresis. Heart examination reveals heart rate of 45/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 90/60 mmHg. His oxygen saturation is 95% on room air. Investigations show:

Chest X-ray	Normal
ECG	2 mm ST elevation in II, III and aVF
Serum troponin	0.15 ng/mL

He was given aspirin 300 mg, clopidogrel, subcutaneous low-molecular-weight heparin, B-blocker, intravenous morphine and sublingual GTN and referred to PCI.

2 hours later his pain has resolved. ECG shows inferior Q waves, wide QRS and the ventricular rate is 40/minute.

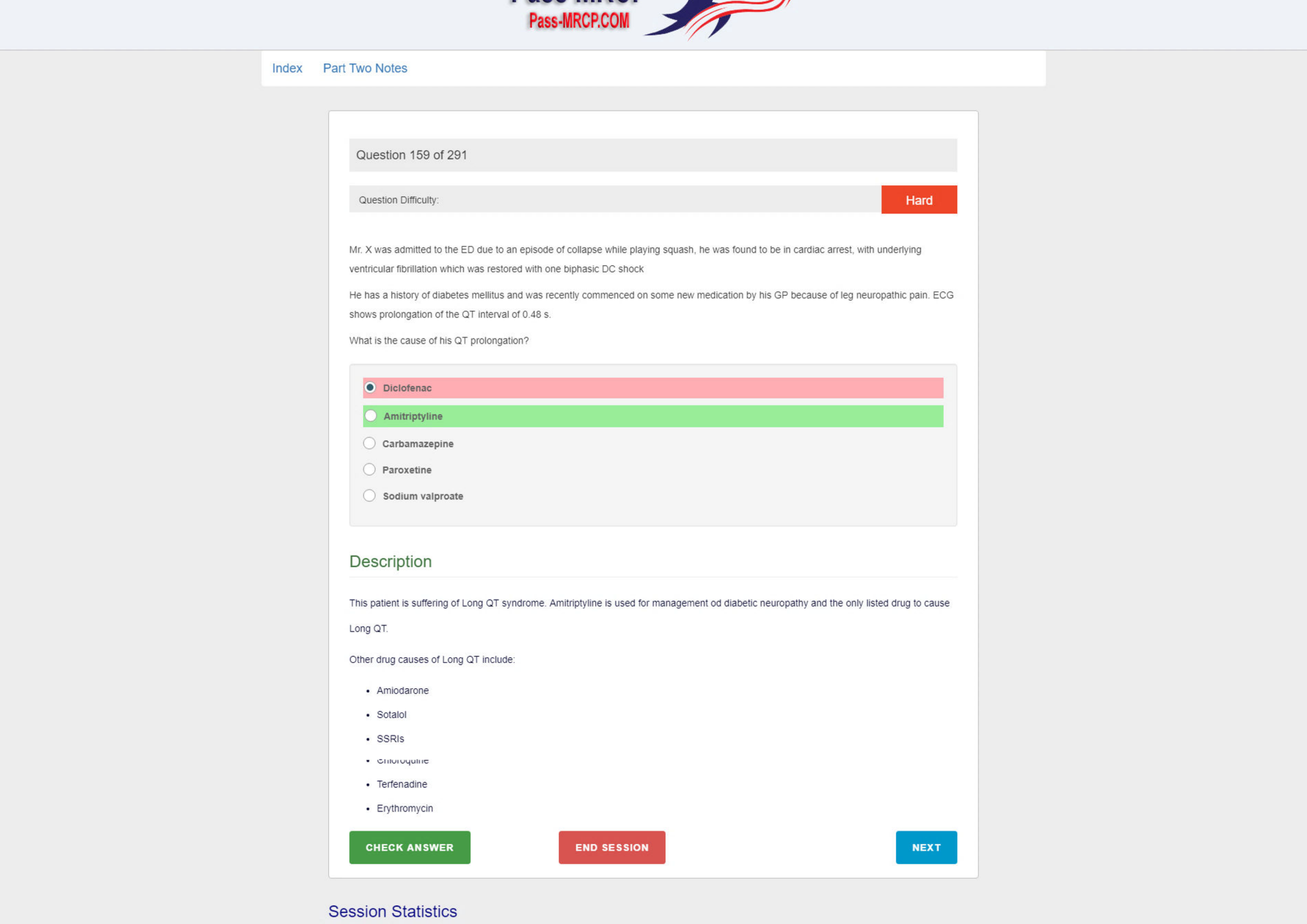
What should be offered to reduce dyspnea?

- ○ **Follow up**
- ○ **Temporary pacing**
- ● **Salbutamol inhalation**
- ○ **Adrenaline**
- ○ **Atropine**

Description

This patient ECG shows resolved MI but persistent complete heart block. Heart block is commonly associated with inferior myocardial infarctions (as this case) as the AV node is supplied by the right coronary artery.

If the patient is asymptomatic, he should continue to be monitored, if symptomatic; temporary pacing should be inserted.



Question 159 of 291

Question Difficulty: Hard

Mr. X was admitted to the ED due to an episode of collapse while playing squash, he was found to be in cardiac arrest, with underlying ventricular fibrillation which was restored with one biphasic DC shock

He has a history of diabetes mellitus and was recently commenced on some new medication by his GP because of leg neuropathic pain. ECG shows prolongation of the QT interval of 0.48 s.

What is the cause of his QT prolongation?

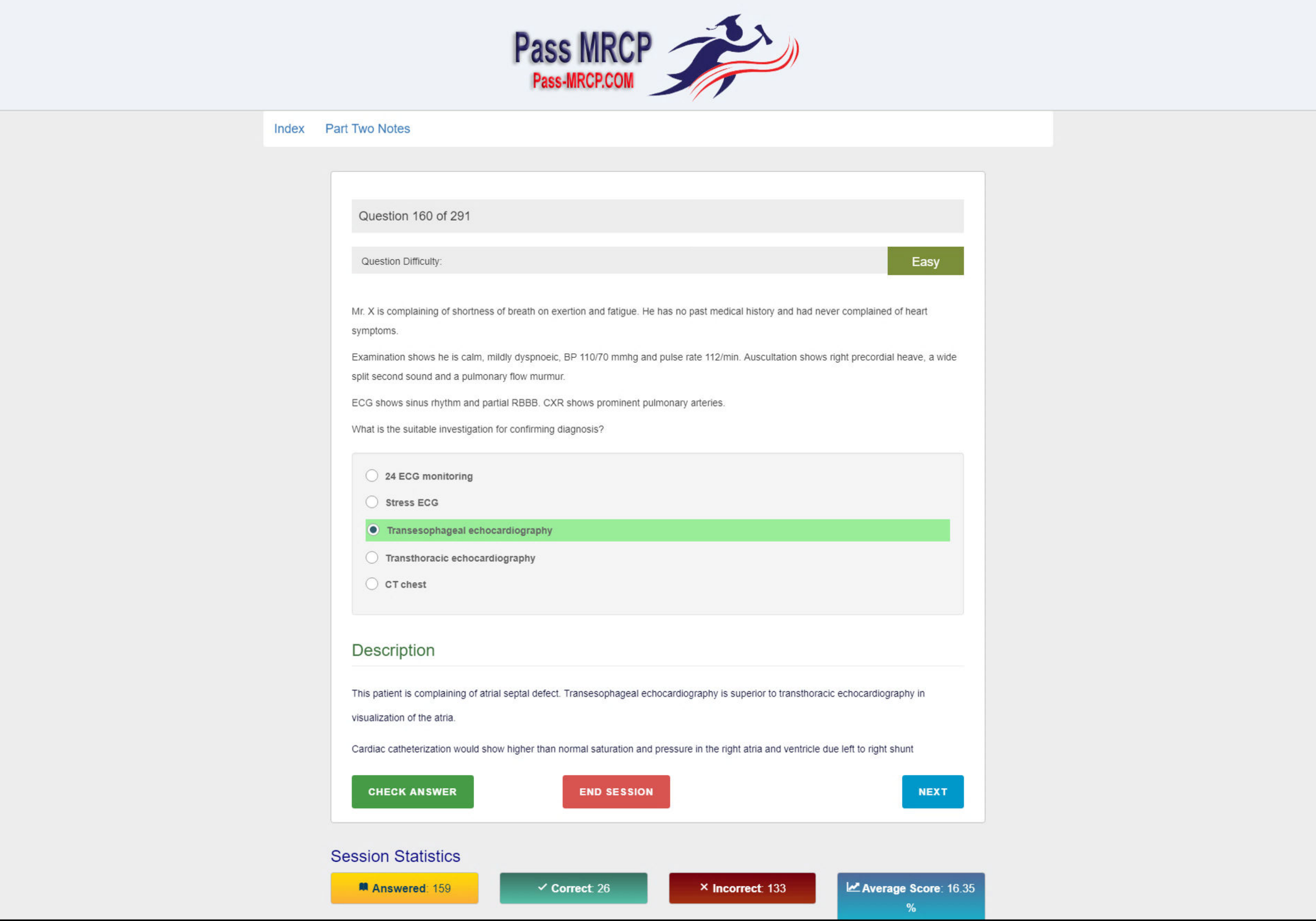
● **Diclofenac**
○ **Amitriptyline**
○ **Carbamazepine**
○ **Paroxetine**
○ **Sodium valproate**

Description

This patient is suffering of Long QT syndrome. Amitriptyline is used for management od diabetic neuropathy and the only listed drug to cause Long QT.

Other drug causes of Long QT include:

- Amiodarone
- Sotalol
- SSRIs
- Chloroquine
- Terfenadine
- Erythromycin



Question 160 of 291

Question Difficulty: Easy

Mr. X is complaining of shortness of breath on exertion and fatigue. He has no past medical history and had never complained of heart symptoms.

Examination shows he is calm, mildly dyspnoeic, BP 110/70 mmhg and pulse rate 112/min. Auscultation shows right precordial heave, a wide split second sound and a pulmonary flow murmur.

ECG shows sinus rhythm and partial RBBB. CXR shows prominent pulmonary arteries.

What is the suitable investigation for confirming diagnosis?

- ○ **24 ECG monitoring**
- ○ **Stress ECG**
- ● **Transesophageal echocardiography**
- ○ **Transthoracic echocardiography**
- ○ **CT chest**

Description

This patient is complaining of atrial septal defect. Transesophageal echocardiography is superior to transthoracic echocardiography in visualization of the atria.

Cardiac catheterization would show higher than normal saturation and pressure in the right atria and ventricle due left to right shunt

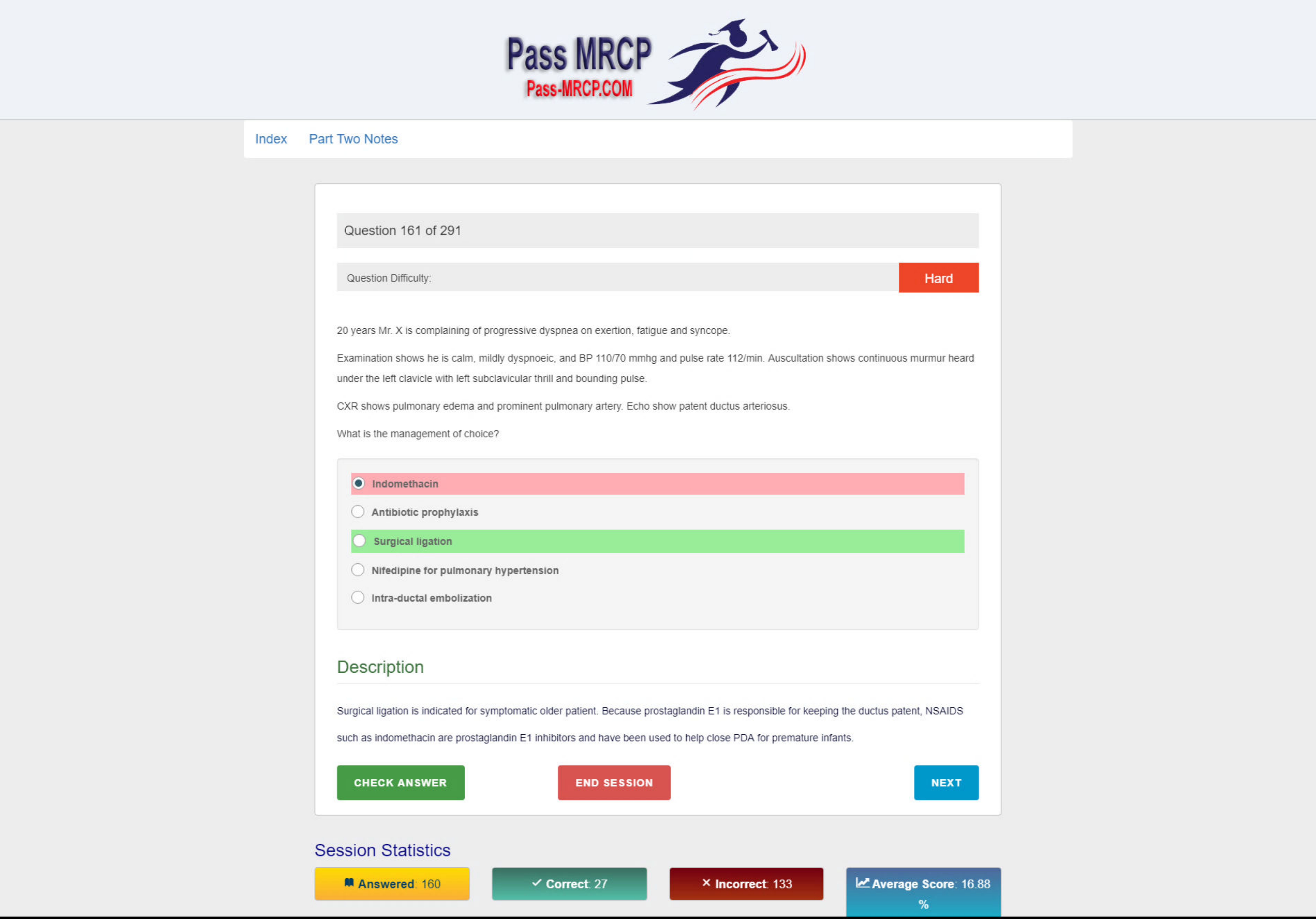
Session Statistics

Answered: 159

✓ **Correct**: 26

✕ **Incorrect**: 133

Average Score: 16.35 %



Question 161 of 291

Question Difficulty: Hard

20 years Mr. X is complaining of progressive dyspnea on exertion, fatigue and syncope.

Examination shows he is calm, mildly dyspnoeic, and BP 110/70 mmhg and pulse rate 112/min. Auscultation shows continuous murmur heard under the left clavicle with left subclavicular thrill and bounding pulse.

CXR shows pulmonary edema and prominent pulmonary artery. Echo show patent ductus arteriosus.

What is the management of choice?

- ● **Indomethacin**
- ○ **Antibiotic prophylaxis**
- ○ **Surgical ligation**
- ○ **Nifedipine for pulmonary hypertension**
- ○ **Intra-ductal embolization**

Description

Surgical ligation is indicated for symptomatic older patient. Because prostaglandin E1 is responsible for keeping the ductus patent, NSAIDS such as indomethacin are prostaglandin E1 inhibitors and have been used to help close PDA for premature infants.

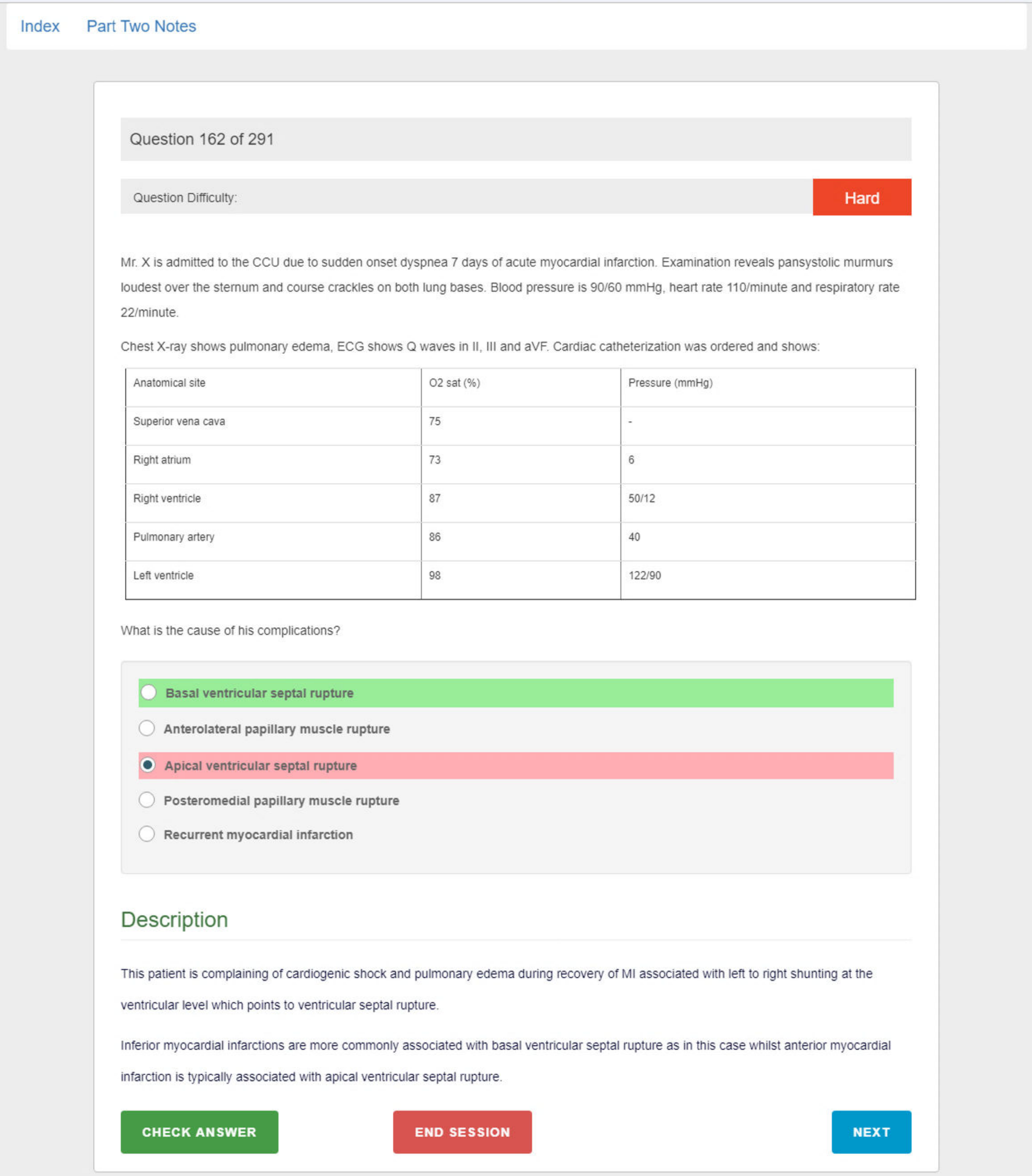
Session Statistics

Answered: 160

✓ **Correct**: 27

✕ **Incorrect**: 133

Average Score: 16.88 %



Question 162 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the CCU due to sudden onset dyspnea 7 days of acute myocardial infarction. Examination reveals pansystolic murmurs loudest over the sternum and course crackles on both lung bases. Blood pressure is 90/60 mmHg, heart rate 110/minute and respiratory rate 22/minute.

Chest X-ray shows pulmonary edema, ECG shows Q waves in II, III and aVF. Cardiac catheterization was ordered and shows:

Anatomical site	O2 sat (%)	Pressure (mmHg)
Superior vena cava	75	-
Right atrium	73	6
Right ventricle	87	50/12
Pulmonary artery	86	40
Left ventricle	98	122/90

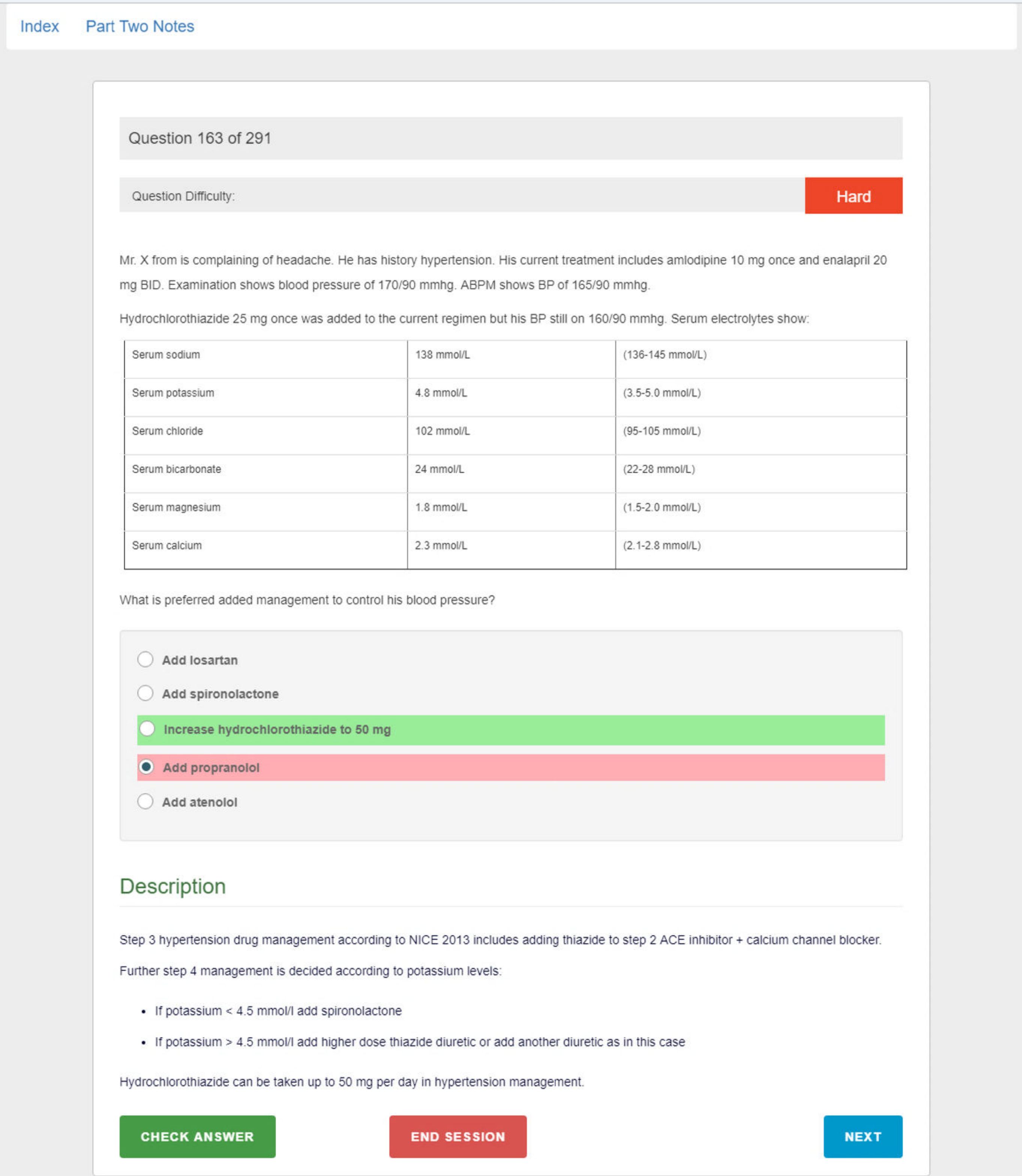
What is the cause of his complications?

- ○ **Basal ventricular septal rupture**
- ○ **Anterolateral papillary muscle rupture**
- ● **Apical ventricular septal rupture**
- ○ **Posteromedial papillary muscle rupture**
- ○ **Recurrent myocardial infarction**

Description

This patient is complaining of cardiogenic shock and pulmonary edema during recovery of MI associated with left to right shunting at the ventricular level which points to ventricular septal rupture.

Inferior myocardial infarctions are more commonly associated with basal ventricular septal rupture as in this case whilst anterior myocardial infarction is typically associated with apical ventricular septal rupture.



Question 163 of 291

Question Difficulty: **Hard**

Mr. X from is complaining of headache. He has history hypertension. His current treatment includes amlodipine 10 mg once and enalapril 20 mg BID. Examination shows blood pressure of 170/90 mmhg. ABPM shows BP of 165/90 mmhg.

Hydrochlorothiazide 25 mg once was added to the current regimen but his BP still on 160/90 mmhg. Serum electrolytes show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	102 mmol/L	(95-105 mmol/L)
Serum bicarbonate	24 mmol/L	(22-28 mmol/L)
Serum magnesium	1.8 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)

What is preferred added management to control his blood pressure?

○ **Add losartan**
○ **Add spironolactone**
○ **Increase hydrochlorothiazide to 50 mg**
● **Add propranolol**
○ **Add atenolol**

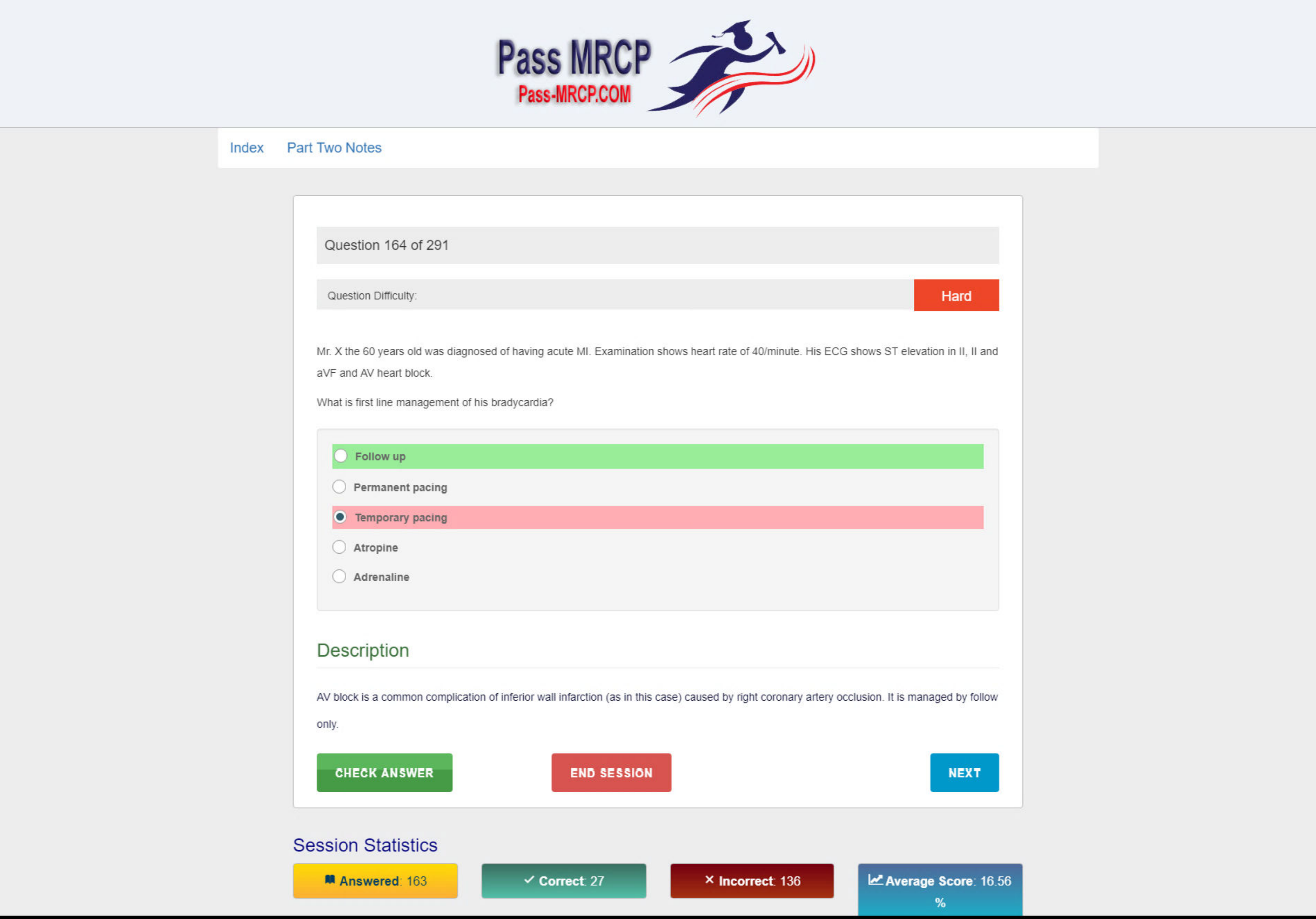
Description

Step 3 hypertension drug management according to NICE 2013 includes adding thiazide to step 2 ACE inhibitor + calcium channel blocker.

Further step 4 management is decided according to potassium levels:

- If potassium < 4.5 mmol/l add spironolactone
- If potassium > 4.5 mmol/l add higher dose thiazide diuretic or add another diuretic as in this case

Hydrochlorothiazide can be taken up to 50 mg per day in hypertension management.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Index
Part Two Notes

Question 164 of 291

Question Difficulty: Hard

Mr. X the 60 years old was diagnosed of having acute MI. Examination shows heart rate of 40/minute. His ECG shows ST elevation in II, II and aVF and AV heart block.

What is first line management of his bradycardia?

- ○ Follow up
- ○ Permanent pacing
- ● Temporary pacing
- ○ Atropine
- ○ Adrenaline

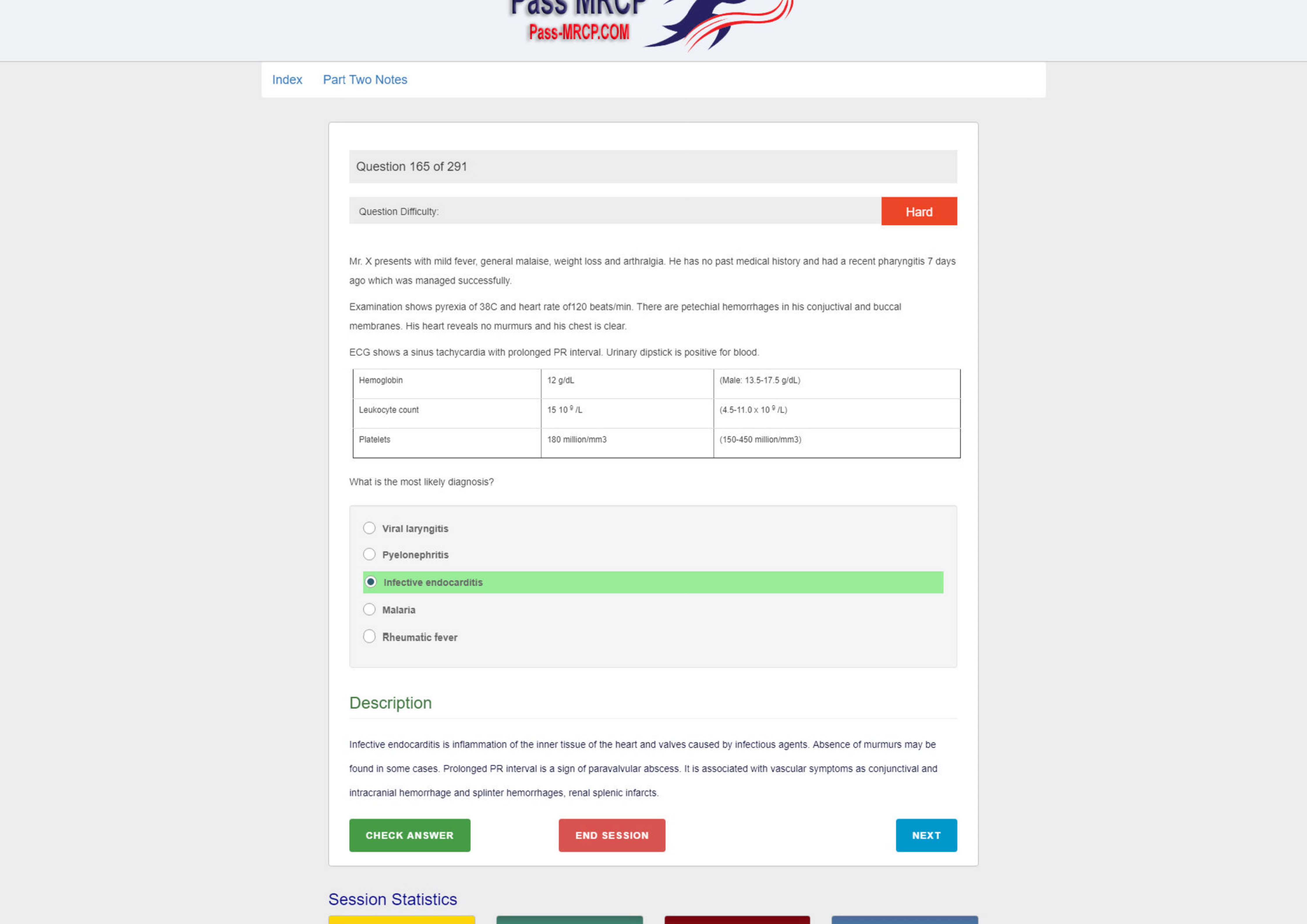
Description

AV block is a common complication of inferior wall infarction (as in this case) caused by right coronary artery occlusion. It is managed by follow only.

CHECK ANSWER
END SESSION
NEXT

Session Statistics

Answered: 163
✓ Correct: 27
× Incorrect: 136
Average Score: 16.56 %



Question 165 of 291

Question Difficulty: **Hard**

Mr. X presents with mild fever, general malaise, weight loss and arthralgia. He has no past medical history and had a recent pharyngitis 7 days ago which was managed successfully.

Examination shows pyrexia of 38C and heart rate of120 beats/min. There are petechial hemorrhages in his conjuctival and buccal membranes. His heart reveals no murmurs and his chest is clear.

ECG shows a sinus tachycardia with prolonged PR interval. Urinary dipstick is positive for blood.

Hemoglobin	12 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	15 10^9/L	(4.5-11.0 x 10^9/L)
Platelets	180 million/mm3	(150-450 million/mm3)

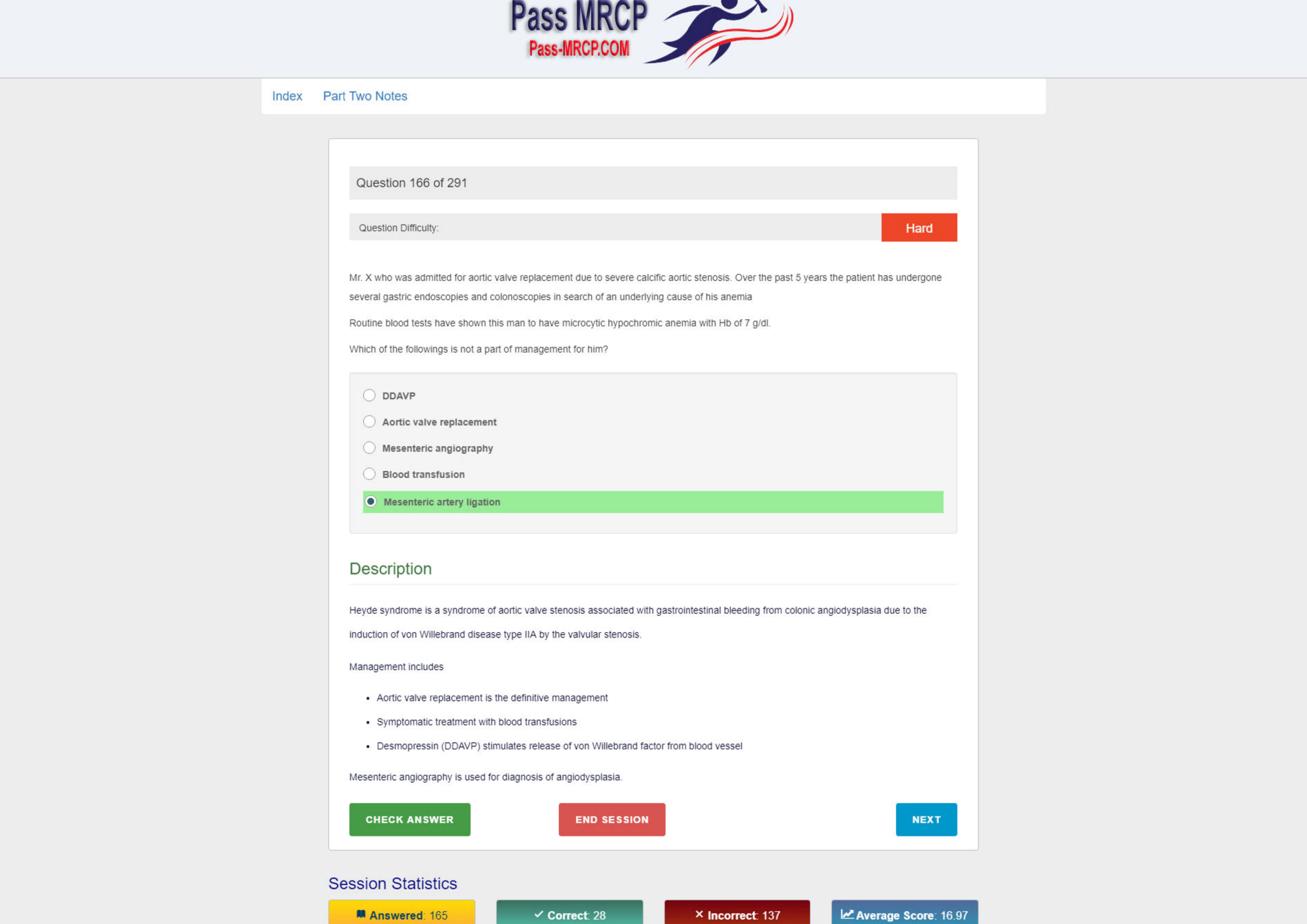
What is the most likely diagnosis?

- ○ **Viral laryngitis**
- ○ **Pyelonephritis**
- ● **Infective endocarditis**
- ○ **Malaria**
- ○ **Rheumatic fever**

Description

Infective endocarditis is inflammation of the inner tissue of the heart and valves caused by infectious agents. Absence of murmurs may be found in some cases. Prolonged PR interval is a sign of paravalvular abscess. It is associated with vascular symptoms as conjunctival and intracranial hemorrhage and splinter hemorrhages, renal splenic infarcts.

Session Statistics



Question 166 of 291

Question Difficulty: Hard

Mr. X who was admitted for aortic valve replacement due to severe calcific aortic stenosis. Over the past 5 years the patient has undergone several gastric endoscopies and colonoscopies in search of an underlying cause of his anemia

Routine blood tests have shown this man to have microcytic hypochromic anemia with Hb of 7 g/dl.

Which of the followings is not a part of management for him?

○ DDAVP
○ Aortic valve replacement
○ Mesenteric angiography
○ Blood transfusion
● Mesenteric artery ligation

Description

Heyde syndrome is a syndrome of aortic valve stenosis associated with gastrointestinal bleeding from colonic angiodysplasia due to the induction of von Willebrand disease type IIA by the valvular stenosis.

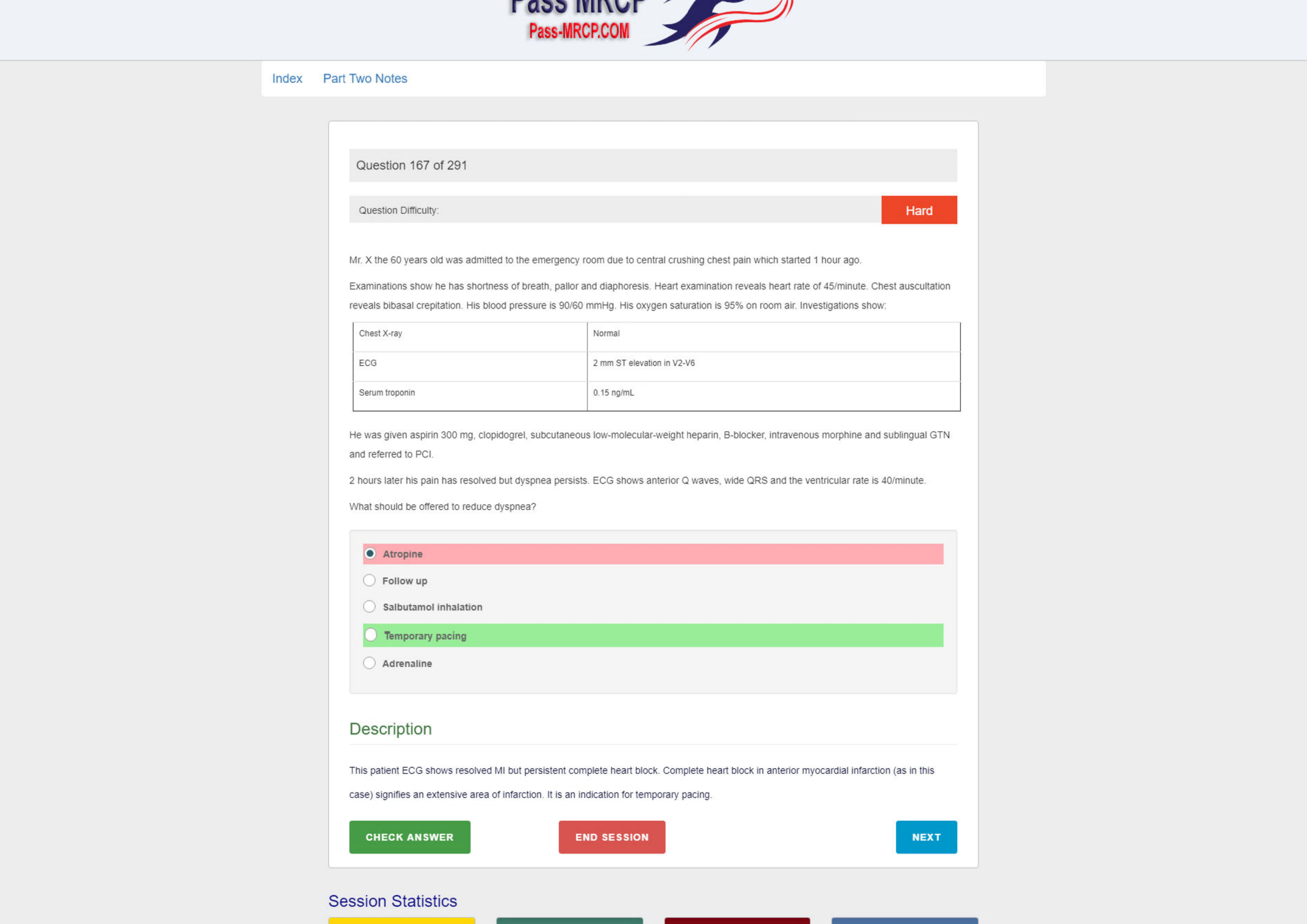
Management includes

- Aortic valve replacement is the definitive management
- Symptomatic treatment with blood transfusions
- Desmopressin (DDAVP) stimulates release of von Willebrand factor from blood vessel

Mesenteric angiography is used for diagnosis of angiodysplasia.

Session Statistics

Answered: 165
✓ Correct: 28
✕ Incorrect: 137
Average Score: 16.97



Question 167 of 291

Question Difficulty: **Hard**

Mr. X the 60 years old was admitted to the emergency room due to central crushing chest pain which started 1 hour ago.

Examinations show he has shortness of breath, pallor and diaphoresis. Heart examination reveals heart rate of 45/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 90/60 mmHg. His oxygen saturation is 95% on room air. Investigations show:

Chest X-ray	Normal
ECG	2 mm ST elevation in V2-V6
Serum troponin	0.15 ng/mL

He was given aspirin 300 mg, clopidogrel, subcutaneous low-molecular-weight heparin, B-blocker, intravenous morphine and sublingual GTN and referred to PCI.

2 hours later his pain has resolved but dyspnea persists. ECG shows anterior Q waves, wide QRS and the ventricular rate is 40/minute.

What should be offered to reduce dyspnea?

- ● **Atropine**
- ○ **Follow up**
- ○ **Salbutamol inhalation**
- ○ **Temporary pacing**
- ○ **Adrenaline**

Description

This patient ECG shows resolved MI but persistent complete heart block. Complete heart block in anterior myocardial infarction (as in this case) signifies an extensive area of infarction. It is an indication for temporary pacing.

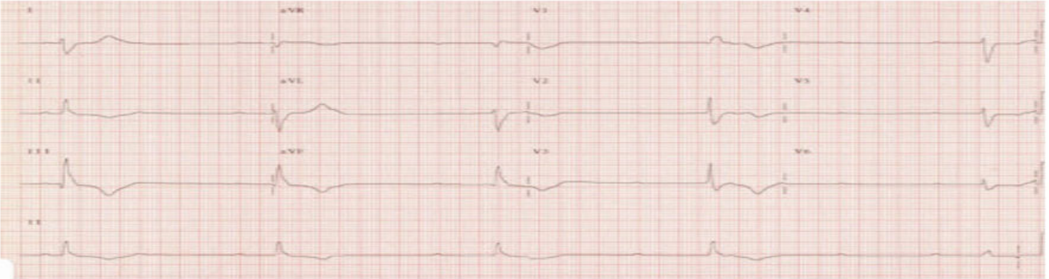
Session Statistics

Question 168 of 291

Question Difficulty: **Hard**

Mr. X was admitted to emergency department due to an episode of syncope. He had 3 previous episodes.

All examinations are normal except irregular cannon waves on examination of the JVP. ECG is shown in the image.



What is the most likely diagnosis?

○ **Complete heart block**

● **Sinus pause**

○ **First-degree AV block**

○ **Mobitz type II AV block**

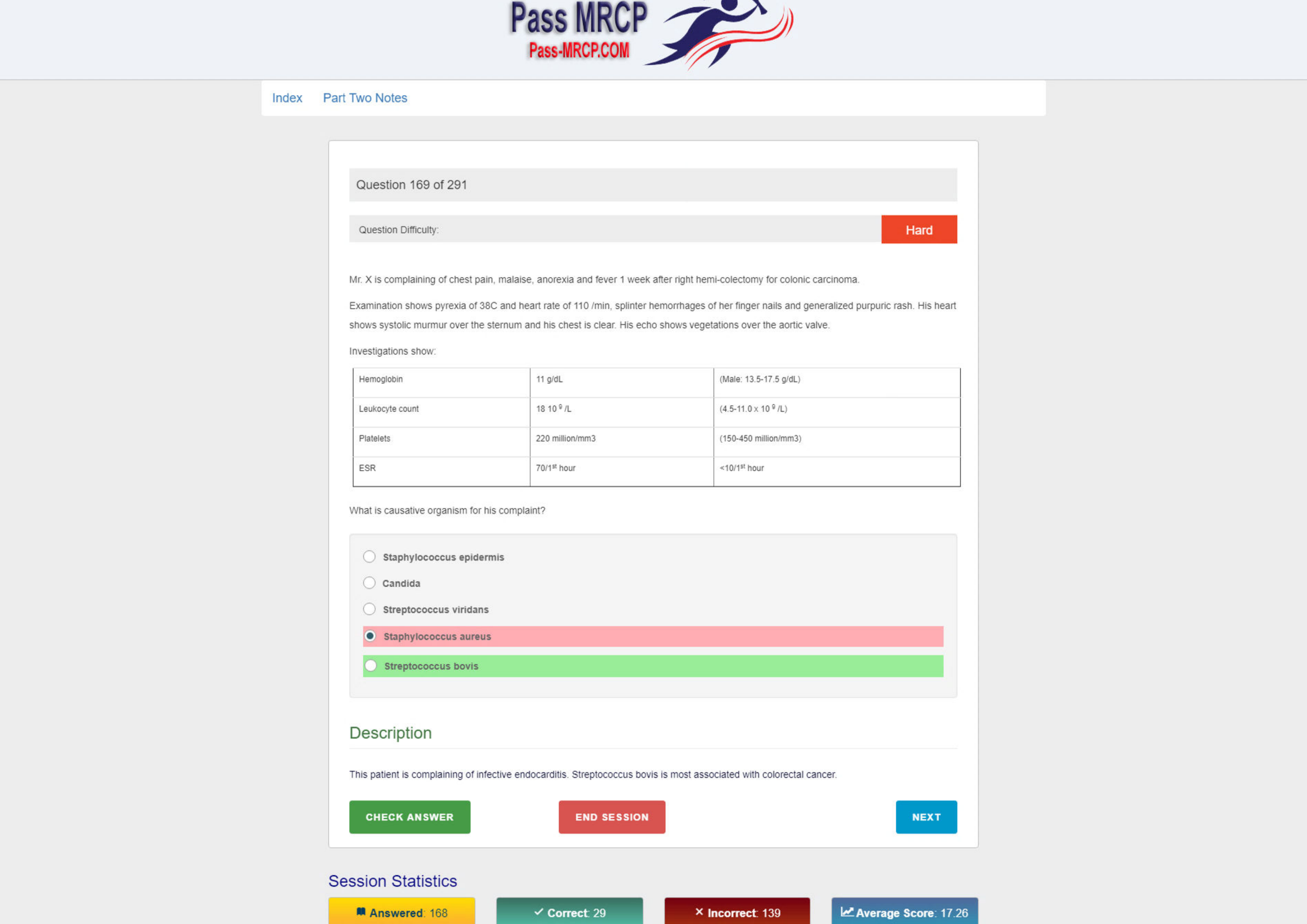
○ **Mobitz type I AV block**

Description

Atrioventricular Block is categorized in to:

- First-degree AV (PR interval > 0.21 second with all atrial impulses conducted)
- Second-degree block is sub-classified in to:
  - Mobitz type I (Wenckebach) AV, the PR interval progressively lengthens, with the RR interval shortening, before the blocked beat.
  - Mobitz type II AV block, there are intermittently non conducted atrial beats not preceded by lengthening AV conduction.
- Complete (third-degree) heart block: Transmission of atrial impulses through the AV node is completely blocked The QRS is wide and the ventricular rate is slower, usually < 50 beats/min

CHECK ANSWER END SESSION NEXT



Question 169 of 291

Question Difficulty: Hard

Mr. X is complaining of chest pain, malaise, anorexia and fever 1 week after right hemi-colectomy for colonic carcinoma.

Examination shows pyrexia of 38C and heart rate of 110 /min, splinter hemorrhages of her finger nails and generalized purpuric rash. His heart shows systolic murmur over the sternum and his chest is clear. His echo shows vegetations over the aortic valve.

Investigations show:

Hemoglobin	11 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	18 10^9 /L	(4.5-11.0 x 10^9 /L)
Platelets	220 million/mm3	(150-450 million/mm3)
ESR	70/1st hour	<10/1st hour

What is causative organism for his complaint?

○ Staphylococcus epidermis
○ Candida
○ Streptococcus viridans
● Staphylococcus aureus
○ Streptococcus bovis

Description

This patient is complaining of infective endocarditis. Streptococcus bovis is most associated with colorectal cancer.

Session Statistics

Answered: 168
✓ Correct: 29
✕ Incorrect: 139
Average Score: 17.26

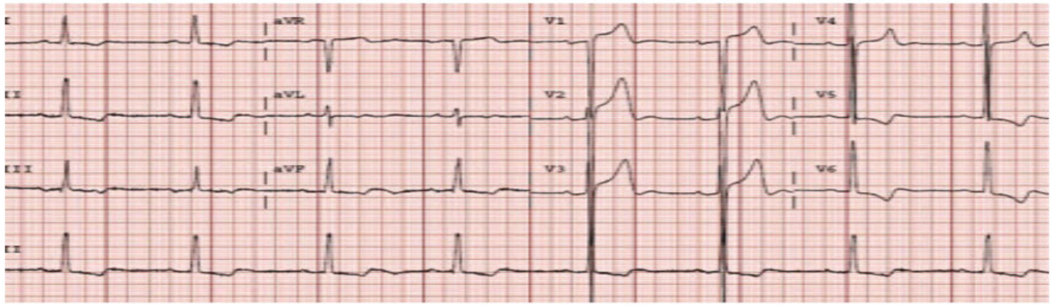
Index Part Two Notes

Question 170 of 291

Question Difficulty: **Hard**

50 years Mr. X is complaining of 3 episodes of collapse over the past month. Each episode lasts 4 min and associated with some twitching of the limbs. There was no tongue biting or loss of continence and he was not confused after the attacks.

Examination shows he has an ejection systolic murmur at the right sternal border and reversed splitting of S2. ECG is shown in the image. Chest X-ray shows an area of calcification overlying the cardiac silhouette.



What is the likely diagnosis?

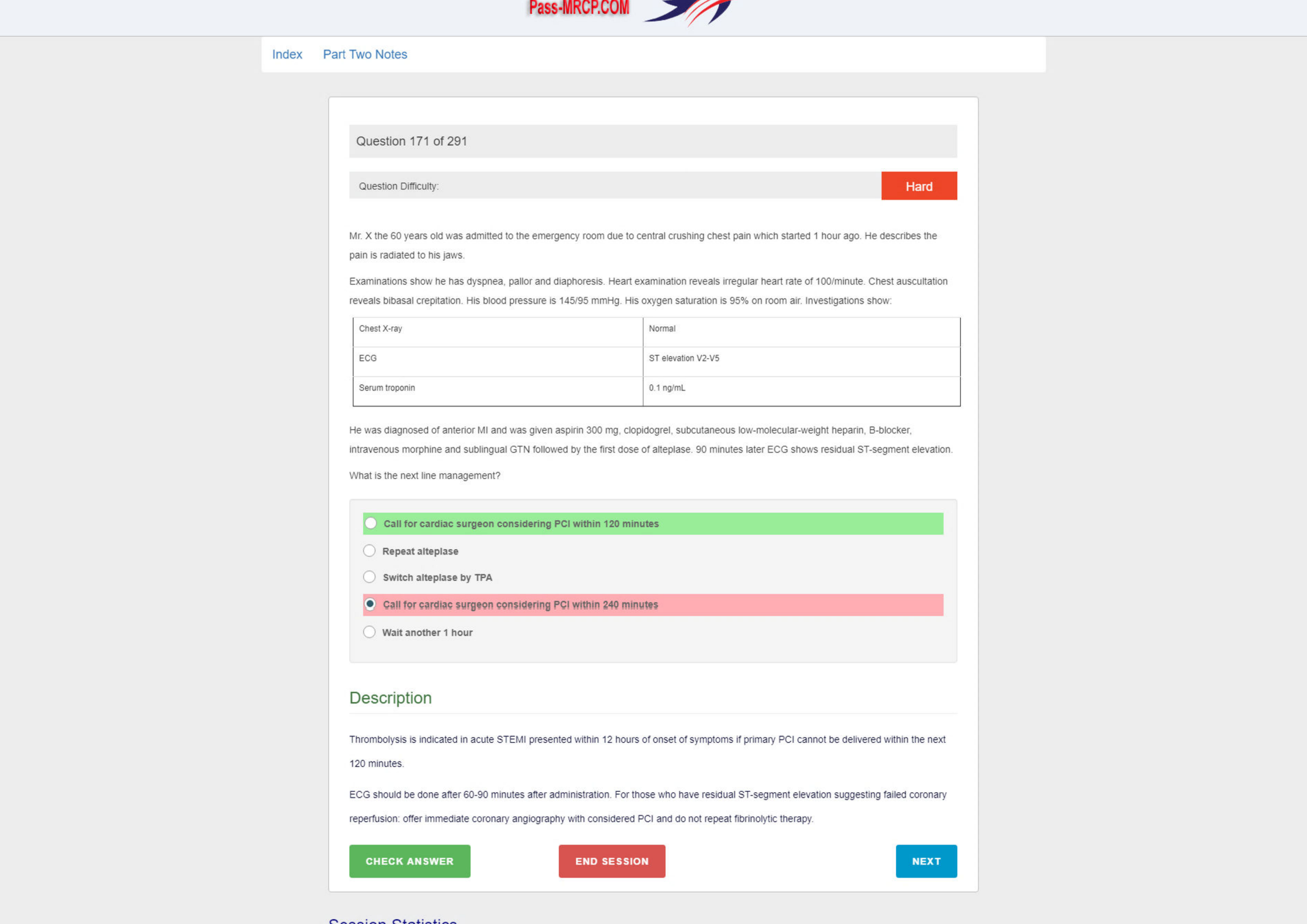
- ○ **Vasovagal syncope**
- ○ **Brugada syndrome**
- ○ **Aortic stenosis**
- ● **Hypertrophic cardiomyopathy**
- ○ **Aortic regurgitation**

Description

The ECG shows left ventricular hypertrophy and strain and the CXR shows calcified aortic valve. Symptoms of aortic stenosis include chest pain, heart failure and syncope.

The paradoxical splitting of the S2 is due to late closure of A2.

CHECK ANSWER END SESSION NEXT



Question 171 of 291

Question Difficulty: **Hard**

Mr. X the 60 years old was admitted to the emergency room due to central crushing chest pain which started 1 hour ago. He describes the pain is radiated to his jaws.

Examinations show he has dyspnea, pallor and diaphoresis. Heart examination reveals irregular heart rate of 100/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 145/95 mmHg. His oxygen saturation is 95% on room air. Investigations show:

Chest X-ray	Normal
ECG	ST elevation V2-V5
Serum troponin	0.1 ng/mL

He was diagnosed of anterior MI and was given aspirin 300 mg, clopidogrel, subcutaneous low-molecular-weight heparin, B-blocker, intravenous morphine and sublingual GTN followed by the first dose of alteplase. 90 minutes later ECG shows residual ST-segment elevation.

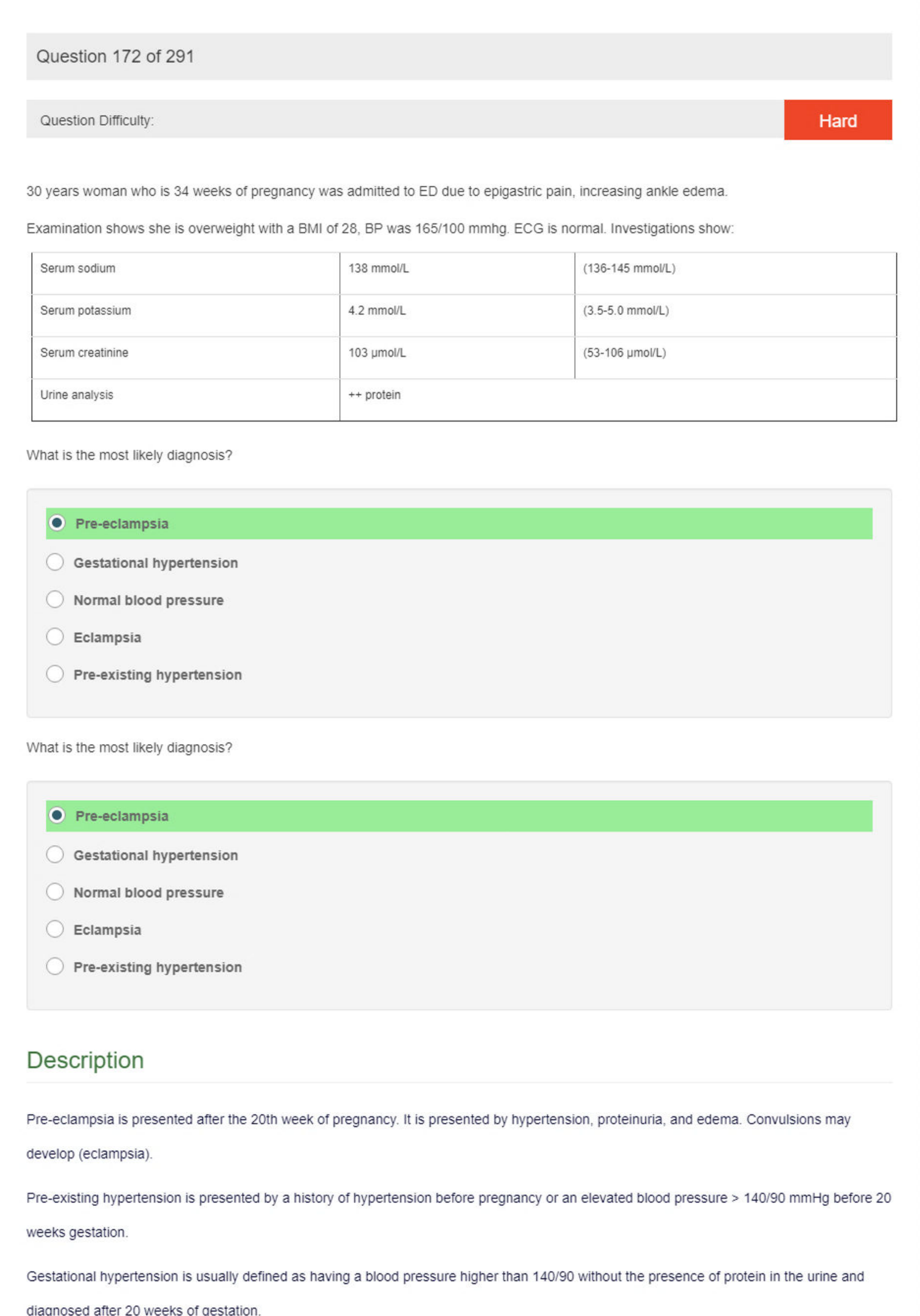
What is the next line management?

- ○ **Call for cardiac surgeon considering PCI within 120 minutes**
- ○ **Repeat alteplase**
- ○ **Switch alteplase by TPA**
- ● **Call for cardiac surgeon considering PCI within 240 minutes**
- ○ **Wait another 1 hour**

Description

Thrombolysis is indicated in acute STEMI presented within 12 hours of onset of symptoms if primary PCI cannot be delivered within the next 120 minutes.

ECG should be done after 60-90 minutes after administration. For those who have residual ST-segment elevation suggesting failed coronary reperfusion: offer immediate coronary angiography with considered PCI and do not repeat fibrinolytic therapy.



Question 172 of 291

Question Difficulty: **Hard**

30 years woman who is 34 weeks of pregnancy was admitted to ED due to epigastric pain, increasing ankle edema.

Examination shows she is overweight with a BMI of 28, BP was 165/100 mmhg. ECG is normal. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	103 µmol/L	(53-106 µmol/L)
Urine analysis	++ protein	

What is the most likely diagnosis?

● **Pre-eclampsia**
○ **Gestational hypertension**
○ **Normal blood pressure**
○ **Eclampsia**
○ **Pre-existing hypertension**

What is the most likely diagnosis?

● **Pre-eclampsia**
○ **Gestational hypertension**
○ **Normal blood pressure**
○ **Eclampsia**
○ **Pre-existing hypertension**

Description

Pre-eclampsia is presented after the 20th week of pregnancy. It is presented by hypertension, proteinuria, and edema. Convulsions may develop (eclampsia).

Pre-existing hypertension is presented by a history of hypertension before pregnancy or an elevated blood pressure > 140/90 mmHg before 20 weeks gestation.

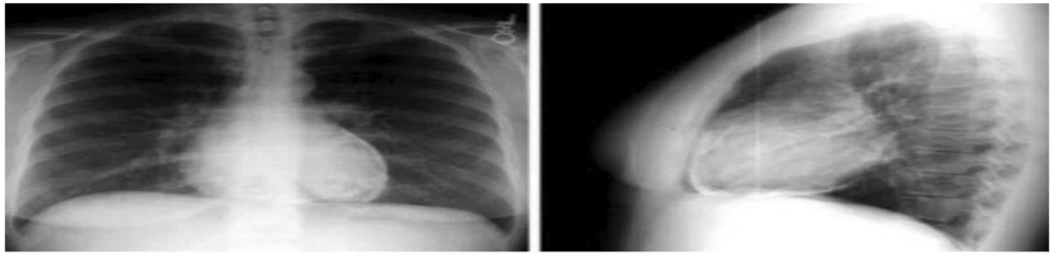
Gestational hypertension is usually defined as having a blood pressure higher than 140/90 without the presence of protein in the urine and diagnosed after 20 weeks of gestation.

Question 173 of 291

Question Difficulty: **Hard**

Mr. X is complaining of shortness of breath and tiredness and weight loss. He reports that this has been increasing over the past 6 months. He also complains of a chronic cough.

Examination shows he looks tired and thin. His BP is 110/70 mmHg and his resting pulse is 80/min. He has bilateral ankle edema. His CXR is shown in the image. ECG shows a low QRS voltage and lateral T-wave changes.



What is the diagnosis?

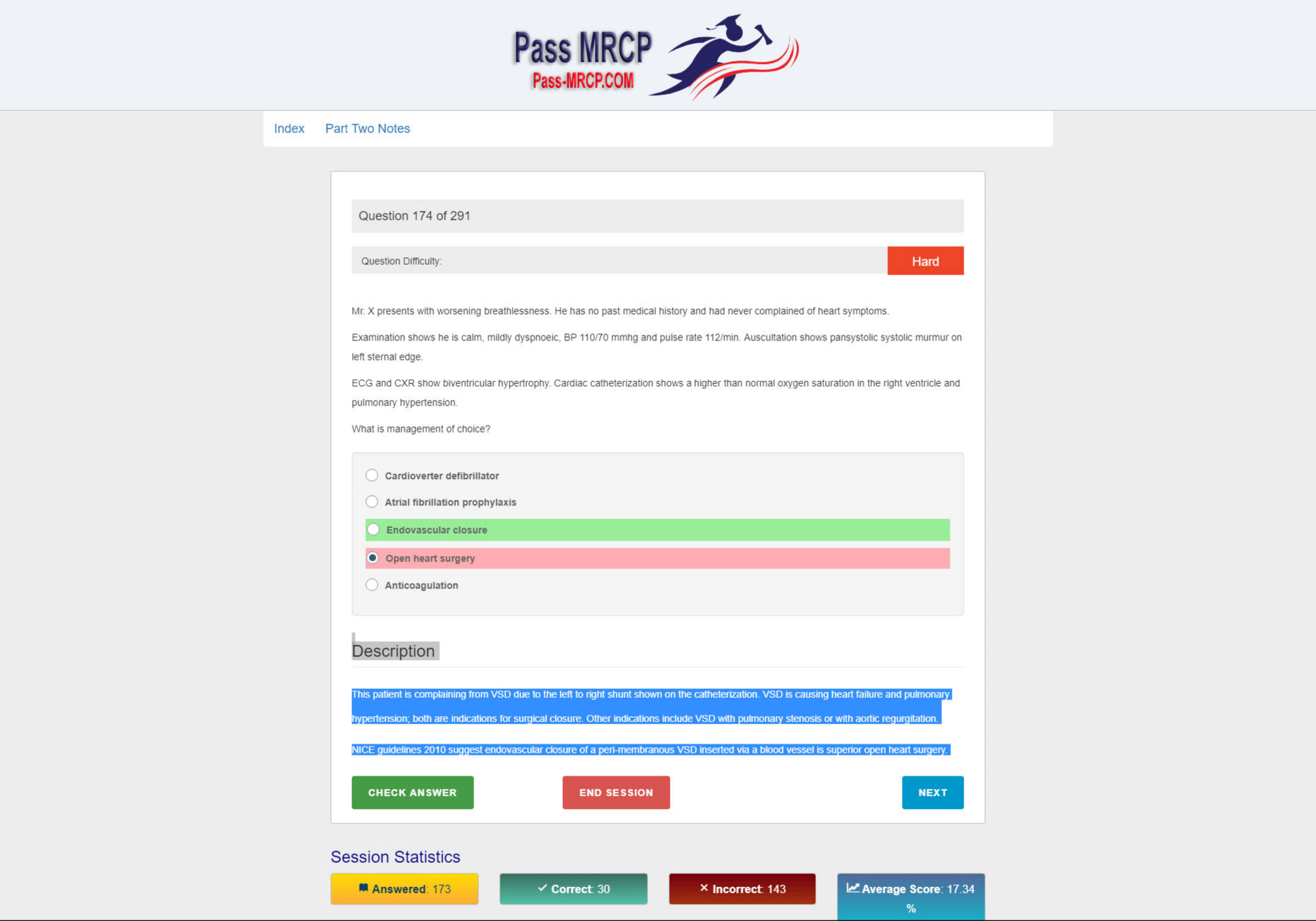
- ○ **Autoimmune pericarditis**
- ● **Restrictive cardiomyopathy**
- ○ **Viral pericarditis**
- ○ **Amyloidosis**
- ○ **Tuberculous pericarditis**

Description

The CXR shows pericardial calcifications, the weight loss and chronic cough are due to tuberculosis infection which causes constrictive pericarditis.

CHECK ANSWER END SESSION NEXT

Session Statistics



Question 174 of 291

Question Difficulty: Hard

Mr. X presents with worsening breathlessness. He has no past medical history and had never complained of heart symptoms.

Examination shows he is calm, mildly dyspnoeic, BP 110/70 mmhg and pulse rate 112/min. Auscultation shows pansystolic systolic murmur on left sternal edge.

ECG and CXR show biventricular hypertrophy. Cardiac catheterization shows a higher than normal oxygen saturation in the right ventricle and pulmonary hypertension.

What is management of choice?

○ **Cardioverter defibrillator**
○ **Atrial fibrillation prophylaxis**
○ **Endovascular closure**
● **Open heart surgery**
○ **Anticoagulation**

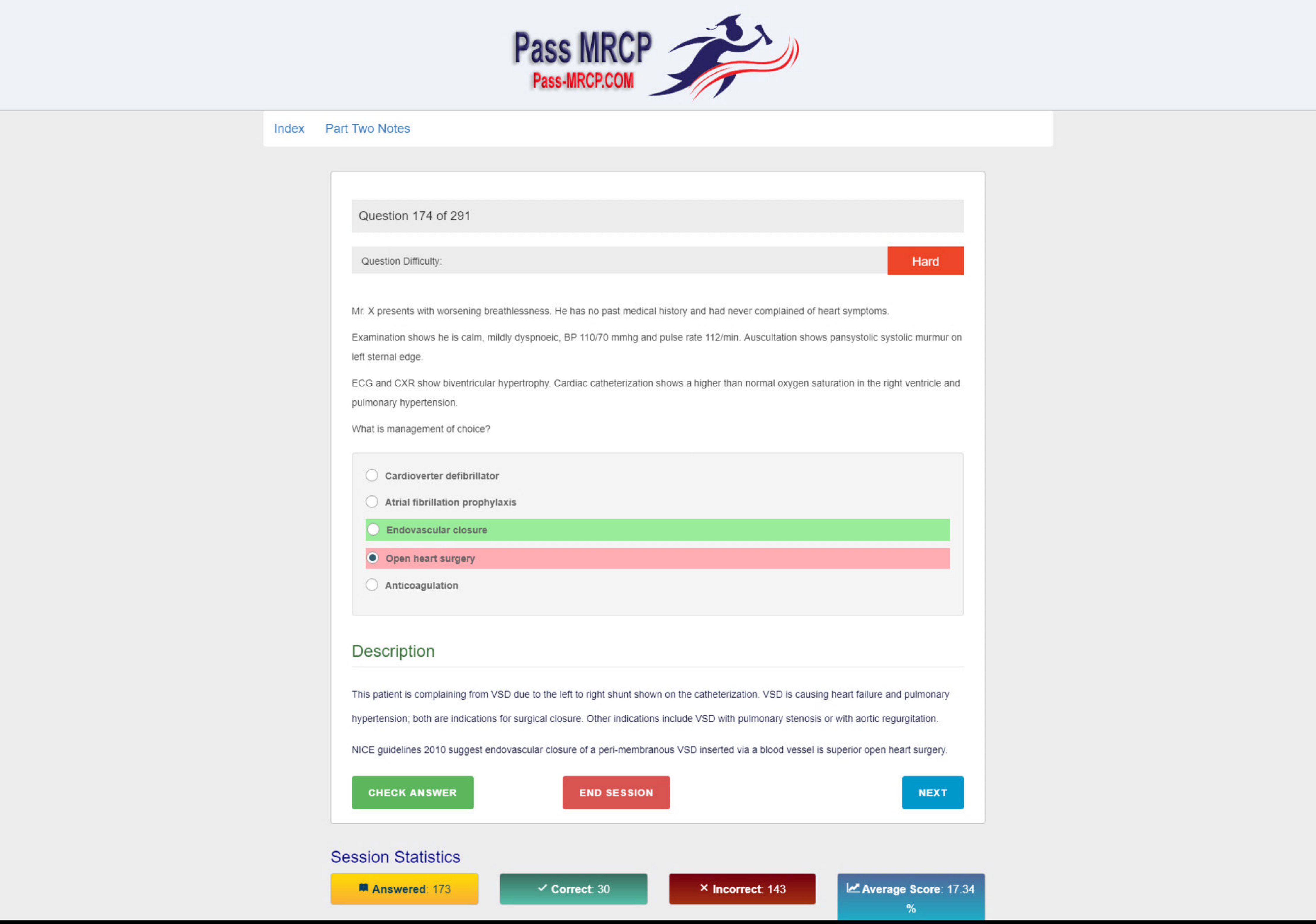
Description

This patient is complaining from VSD due to the left to right shunt shown on the catheterization. VSD is causing heart failure and pulmonary hypertension; both are indications for surgical closure. Other indications include VSD with pulmonary stenosis or with aortic regurgitation.

NICE guidelines 2010 suggest endovascular closure of a peri-membranous VSD inserted via a blood vessel is superior open heart surgery.

Session Statistics

Answered: 173
Correct: 30
Incorrect: 143
Average Score: 17.34 %



Question 174 of 291

Question Difficulty: **Hard**

Mr. X presents with worsening breathlessness. He has no past medical history and had never complained of heart symptoms.

Examination shows he is calm, mildly dyspnoeic, BP 110/70 mmhg and pulse rate 112/min. Auscultation shows pansystolic systolic murmur on left sternal edge.

ECG and CXR show biventricular hypertrophy. Cardiac catheterization shows a higher than normal oxygen saturation in the right ventricle and pulmonary hypertension.

What is management of choice?

- ○ **Cardioverter defibrillator**
- ○ **Atrial fibrillation prophylaxis**
- ○ **Endovascular closure**
- ● **Open heart surgery**
- ○ **Anticoagulation**

Description

This patient is complaining from VSD due to the left to right shunt shown on the catheterization. VSD is causing heart failure and pulmonary hypertension; both are indications for surgical closure. Other indications include VSD with pulmonary stenosis or with aortic regurgitation.

NICE guidelines 2010 suggest endovascular closure of a peri-membranous VSD inserted via a blood vessel is superior open heart surgery.

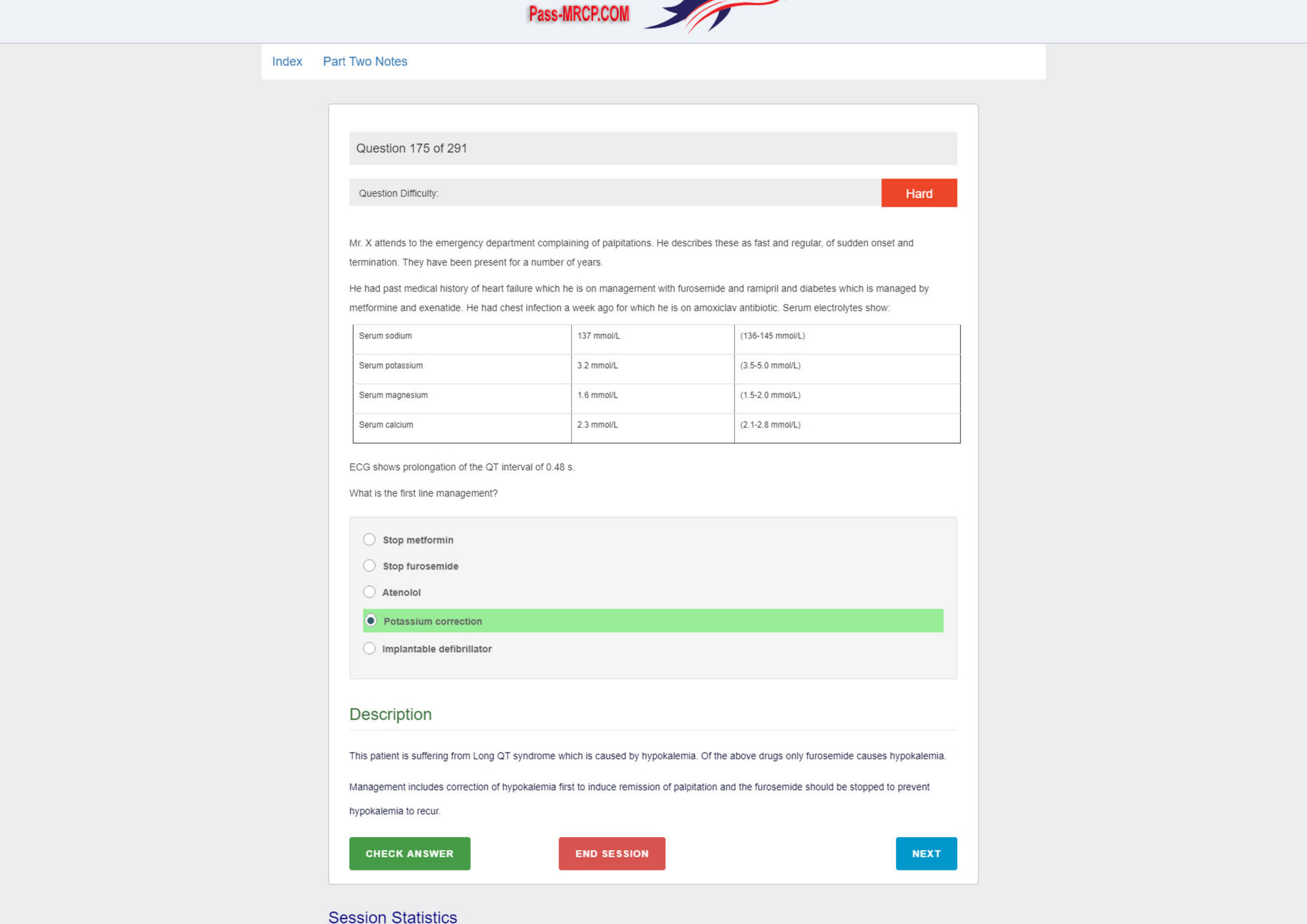
Session Statistics

Answered: 173

✓ **Correct**: 30

✕ **Incorrect**: 143

Average Score: 17.34 %



Question 175 of 291

Question Difficulty: **Hard**

Mr. X attends to the emergency department complaining of palpitations. He describes these as fast and regular, of sudden onset and termination. They have been present for a number of years.

He had past medical history of heart failure which he is on management with furosemide and ramipril and diabetes which is managed by metformine and exenatide. He had chest infection a week ago for which he is on amoxiclav antibiotic. Serum electrolytes show:

Serum sodium	137 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
Serum magnesium	1.6 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)

ECG shows prolongation of the QT interval of 0.48 s.

What is the first line management?

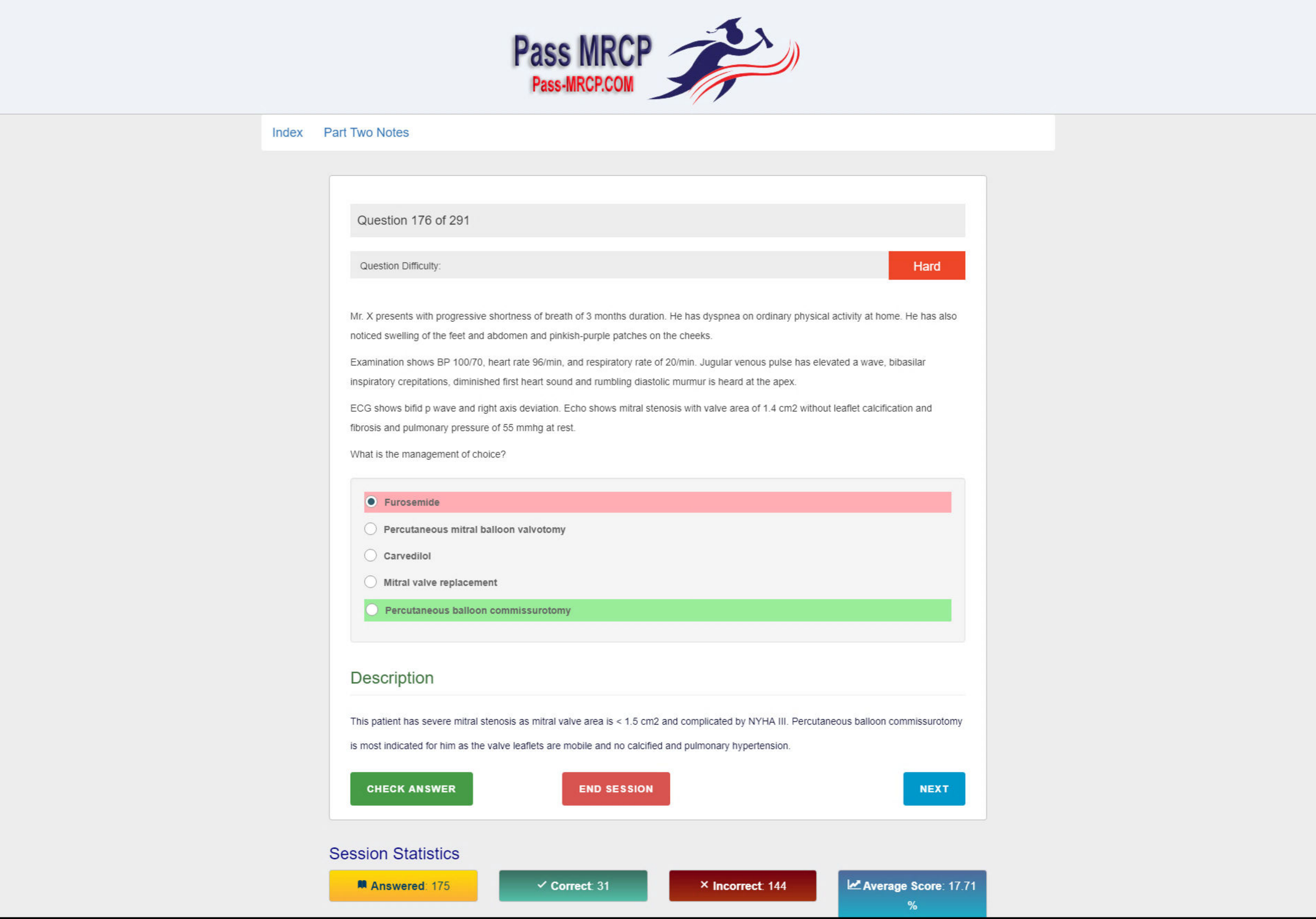
- ○ **Stop metformin**
- ○ **Stop furosemide**
- ○ **Atenolol**
- ● **Potassium correction**
- ○ **Implantable defibrillator**

Description

This patient is suffering from Long QT syndrome which is caused by hypokalemia. Of the above drugs only furosemide causes hypokalemia.

Management includes correction of hypokalemia first to induce remission of palpitation and the furosemide should be stopped to prevent hypokalemia to recur.

Session Statistics



Question 176 of 291

Question Difficulty: Hard

Mr. X presents with progressive shortness of breath of 3 months duration. He has dyspnea on ordinary physical activity at home. He has also noticed swelling of the feet and abdomen and pinkish-purple patches on the cheeks.

Examination shows BP 100/70, heart rate 96/min, and respiratory rate of 20/min. Jugular venous pulse has elevated a wave, bibasilar inspiratory crepitations, diminished first heart sound and rumbling diastolic murmur is heard at the apex.

ECG shows bifid p wave and right axis deviation. Echo shows mitral stenosis with valve area of 1.4 cm2 without leaflet calcification and fibrosis and pulmonary pressure of 55 mmhg at rest.

What is the management of choice?

- ● **Furosemide**
- ○ **Percutaneous mitral balloon valvotomy**
- ○ **Carvedilol**
- ○ **Mitral valve replacement**
- ○ **Percutaneous balloon commissurotomy**

Description

This patient has severe mitral stenosis as mitral valve area is < 1.5 cm2 and complicated by NYHA III. Percutaneous balloon commissurotomy is most indicated for him as the valve leaflets are mobile and no calcified and pulmonary hypertension.

Session Statistics

Answered: 175
✓ **Correct**: 31
✕ **Incorrect**: 144
Average Score: 17.71 %

Question 177 of 291

Question Difficulty: **Hard**

Mr. X presents with breathlessness and palpitations. He has no past medical history and had never complained of heart symptoms.

Examination shows a systolic murmur loud at the apex with a wide fixed splitting of the second heart sound. ECG shows left axis deviation. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	25	65
Right ventricle	60/20	66
Pulmonary artery	25/15	65
Left atrium	9	99
Left ventricle	110/8	99
Aorta	110/40	98

What is the most likely diagnosis?

Right ventricle	60/20	66
Pulmonary artery	25/15	65
Left atrium	9	99
Left ventricle	110/8	99
Aorta	110/40	98

What is the most likely diagnosis?

- ○ **Ostium primum atrial septal defect**
- ○ **Ventricular septal defect**
- ○ **Mitral stenosis**
- ○ **Patent ductus arteriosus**
- ● **Ostium secundum atrial septal defect**

Description

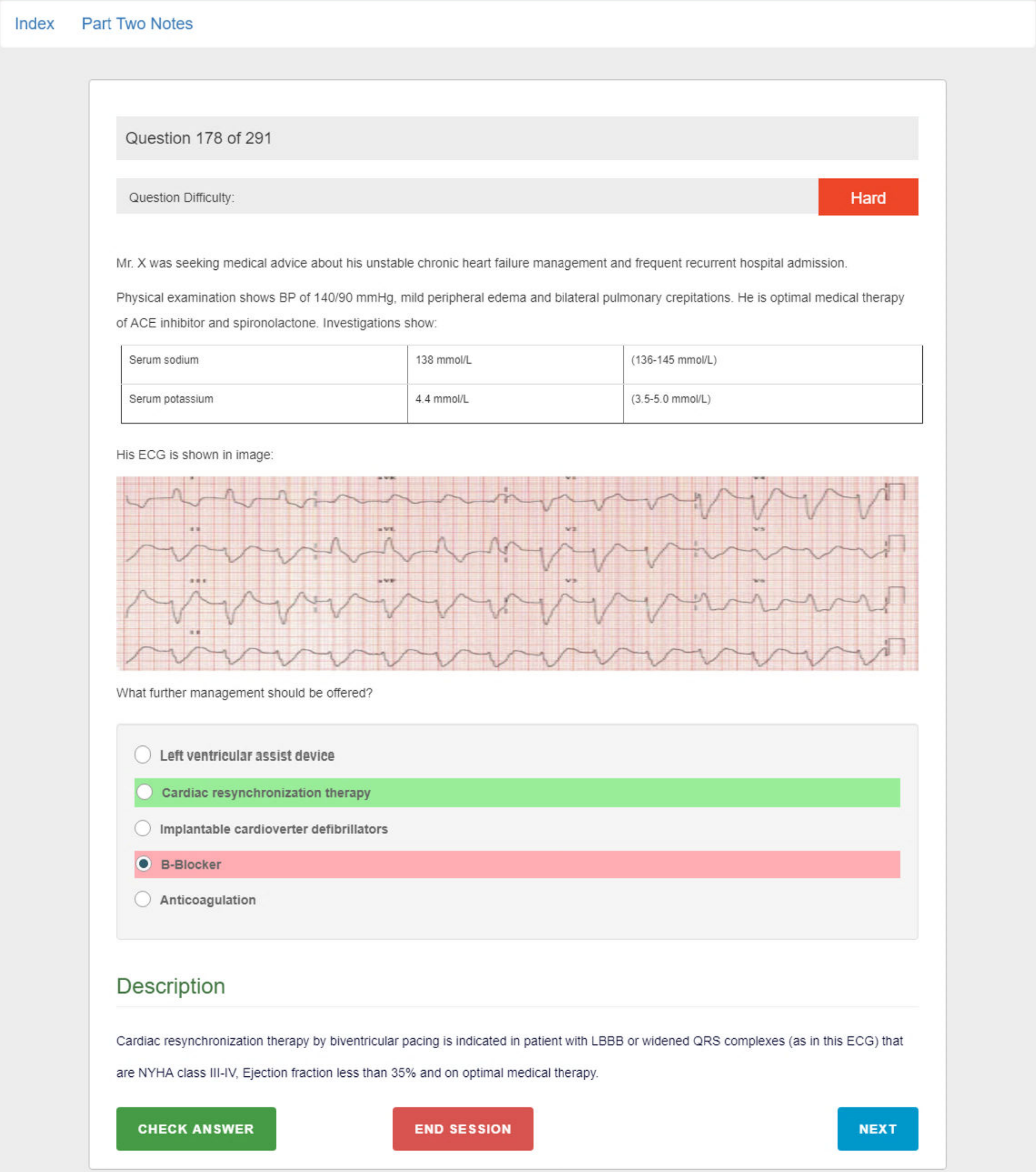
Catheterization shows higher than normal oxygen saturation and pressure in the right atrium and ventricle indicating left to right shut at the atrial level.

Wide fixed splitting of second heart sound and catheterization findings are characteristic of ASD. Left axis deviation is pathognomonic for ostium primum atrial septal defect.

CHECK ANSWER END SESSION NEXT

Session Statistics

Answered: 176 ✓ **Correct**: 31 ✕ **Incorrect**: 145 **Average Score**: 17.61 %



Question 178 of 291

Question Difficulty: **Hard**

Mr. X was seeking medical advice about his unstable chronic heart failure management and frequent recurrent hospital admission.

Physical examination shows BP of 140/90 mmHg, mild peripheral edema and bilateral pulmonary crepitations. He is optimal medical therapy of ACE inhibitor and spironolactone. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.4 mmol/L	(3.5-5.0 mmol/L)

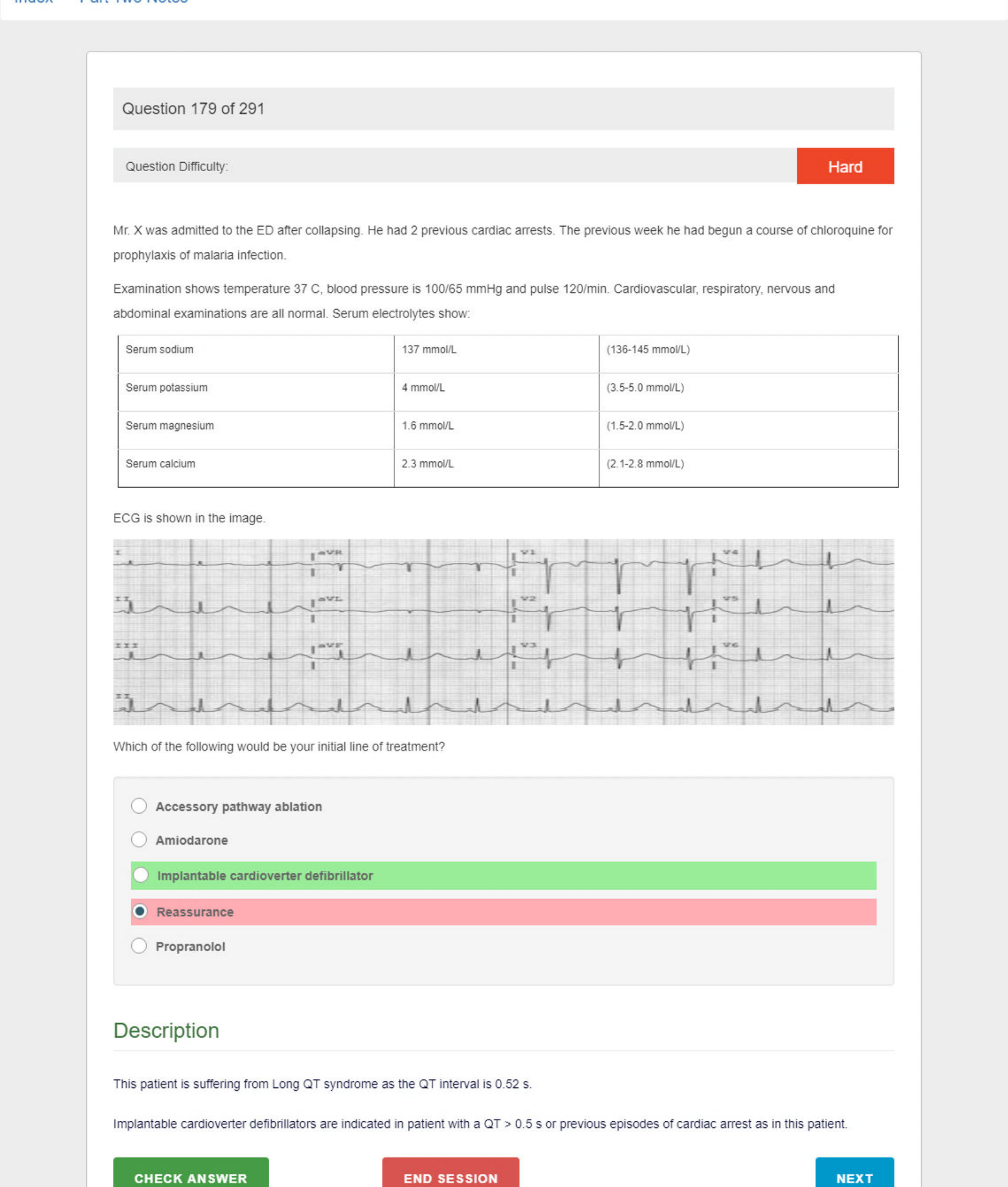
His ECG is shown in image:

What further management should be offered?

- ○ **Left ventricular assist device**
- ○ **Cardiac resynchronization therapy**
- ○ **Implantable cardioverter defibrillators**
- ● **B-Blocker**
- ○ **Anticoagulation**

Description

Cardiac resynchronization therapy by biventricular pacing is indicated in patient with LBBB or widened QRS complexes (as in this ECG) that are NYHA class III-IV, Ejection fraction less than 35% and on optimal medical therapy.



Question 179 of 291

Mr. X was admitted to the ED after collapsing. He had 2 previous cardiac arrests. The previous week he had begun a course of chloroquine for prophylaxis of malaria infection.

Examination shows temperature 37 C, blood pressure is 100/65 mmHg and pulse 120/min. Cardiovascular, respiratory, nervous and abdominal examinations are all normal. Serum electrolytes show:

Serum sodium	137 mmol/L	(136-145 mmol/L)
Serum potassium	4 mmol/L	(3.5-5.0 mmol/L)
Serum magnesium	1.6 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)

ECG is shown in the image.

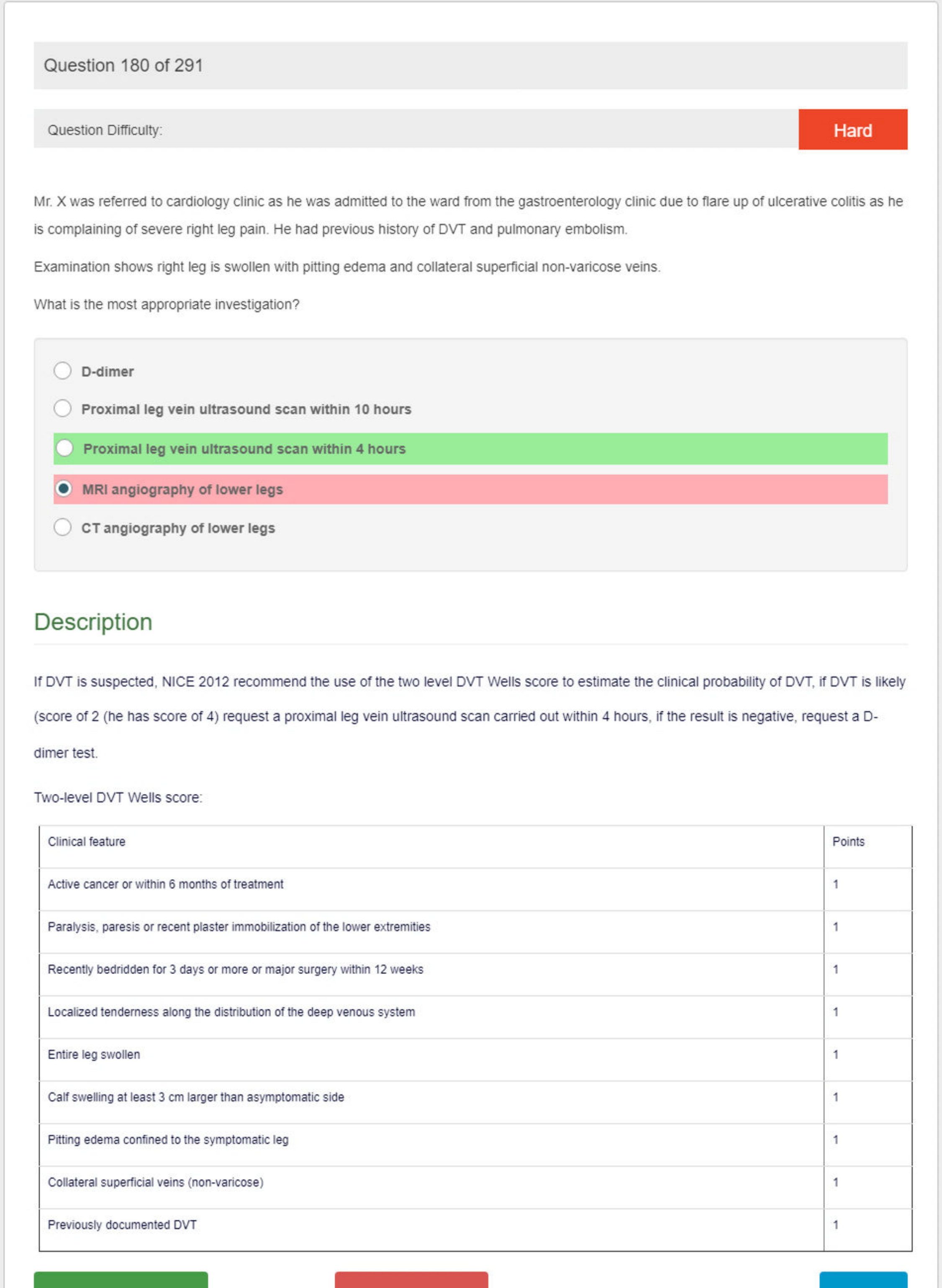
Which of the following would be your initial line of treatment?

- ○ Accessory pathway ablation
- ○ Amiodarone
- ○ Implantable cardioverter defibrillator
- ● Reassurance
- ○ Propranolol

Description

This patient is suffering from Long QT syndrome as the QT interval is 0.52 s.

Implantable cardioverter defibrillators are indicated in patient with a QT > 0.5 s or previous episodes of cardiac arrest as in this patient.



Question 180 of 291

Question Difficulty: **Hard**

Mr. X was referred to cardiology clinic as he was admitted to the ward from the gastroenterology clinic due to flare up of ulcerative colitis as he is complaining of severe right leg pain. He had previous history of DVT and pulmonary embolism.

Examination shows right leg is swollen with pitting edema and collateral superficial non-varicose veins.

What is the most appropriate investigation?

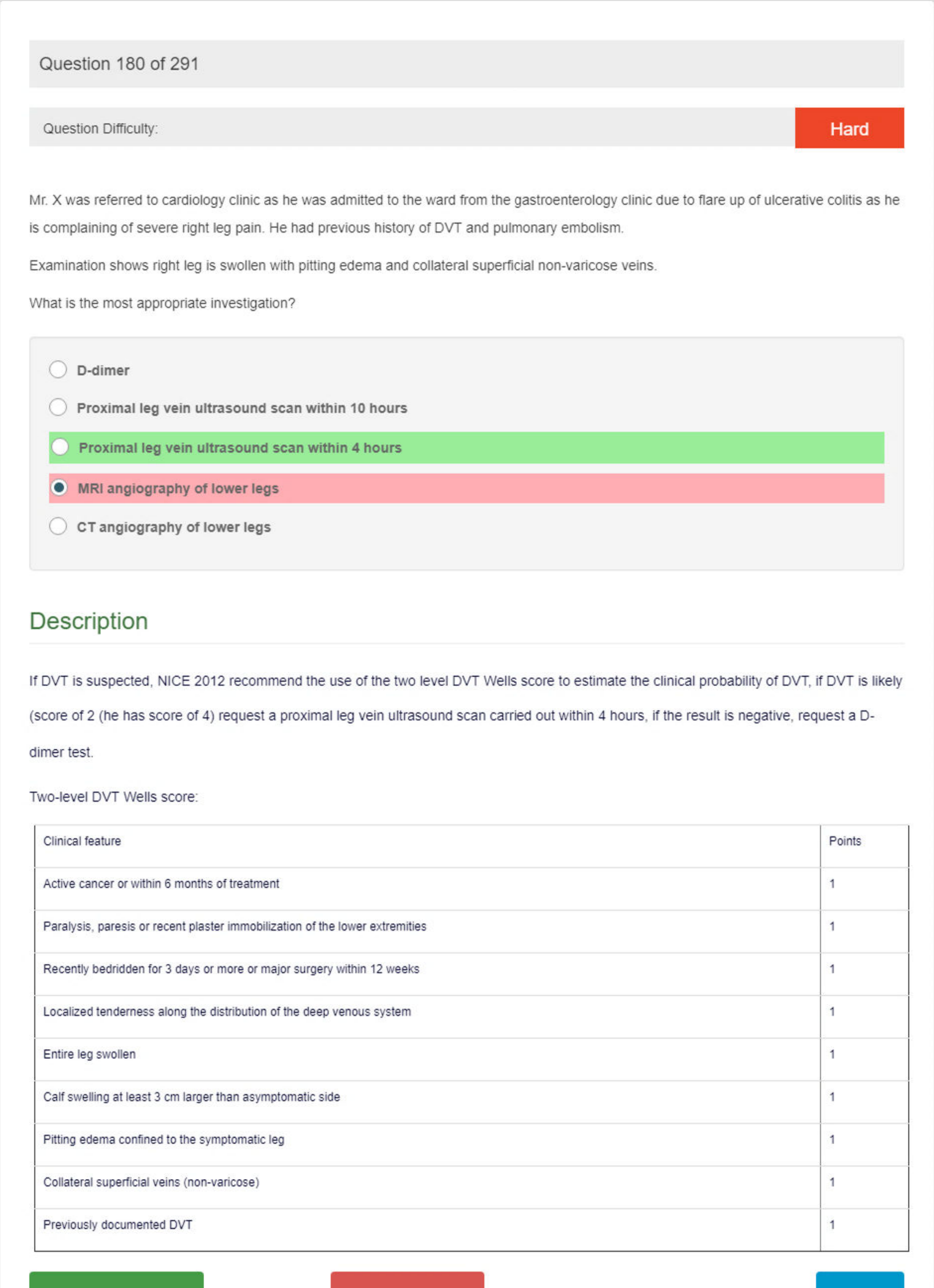
- ○ **D-dimer**
- ○ **Proximal leg vein ultrasound scan within 10 hours**
- ○ **Proximal leg vein ultrasound scan within 4 hours**
- ● **MRI angiography of lower legs**
- ○ **CT angiography of lower legs**

Description

If DVT is suspected, NICE 2012 recommend the use of the two level DVT Wells score to estimate the clinical probability of DVT, if DVT is likely (score of 2 (he has score of 4) request a proximal leg vein ultrasound scan carried out within 4 hours, if the result is negative, request a D-dimer test.

Two-level DVT Wells score:

Clinical feature	Points
Active cancer or within 6 months of treatment	1
Paralysis, paresis or recent plaster immobilization of the lower extremities	1
Recently bedridden for 3 days or more or major surgery within 12 weeks	1
Localized tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
Calf swelling at least 3 cm larger than asymptomatic side	1
Pitting edema confined to the symptomatic leg	1
Collateral superficial veins (non-varicose)	1
Previously documented DVT	1



Question 180 of 291

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Clinical feature	Points
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Calf swelling at least 3 cm larger than asymptomatic side	1
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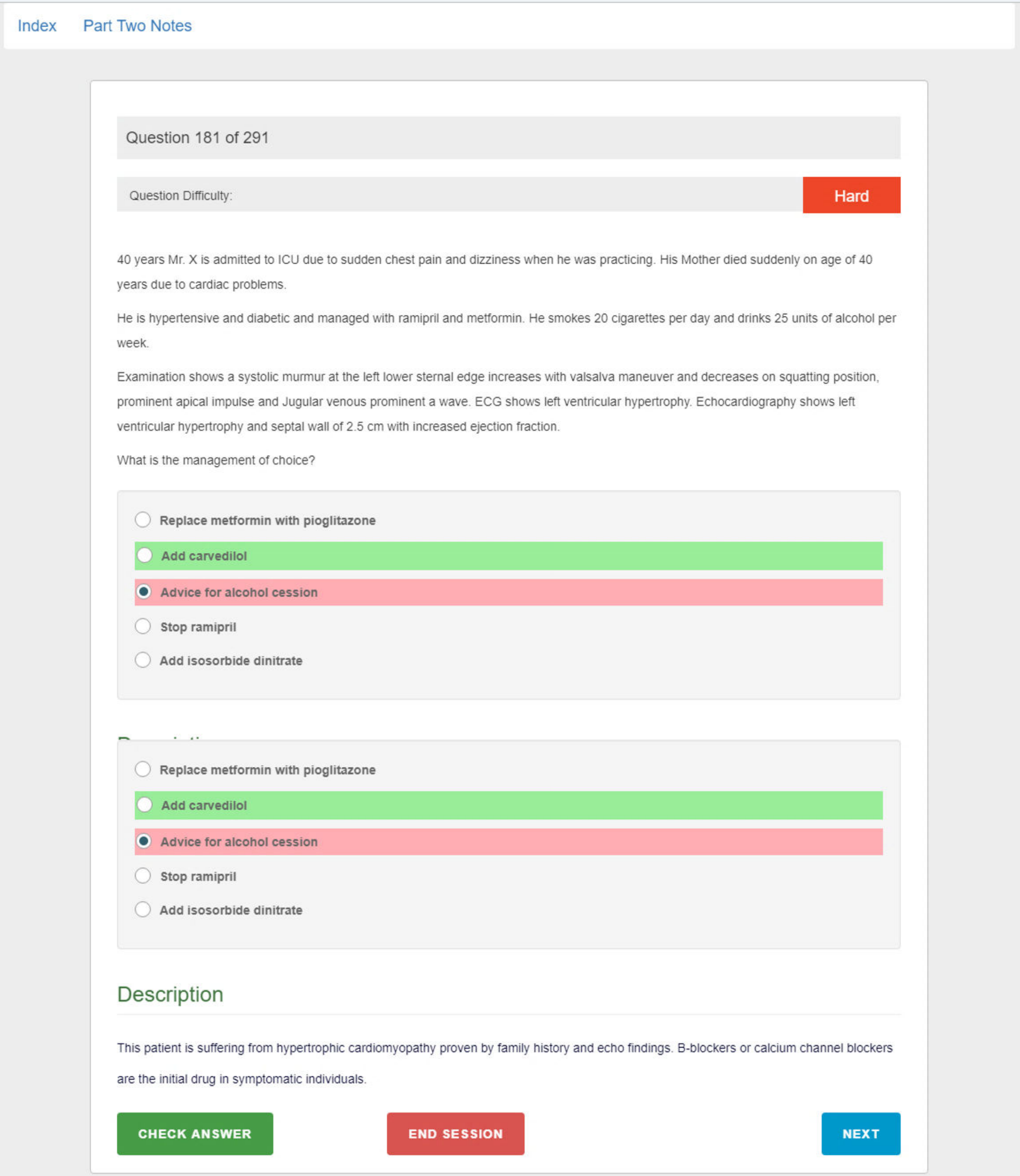
Collateral superficial veins (non-varicose)	1
Previously documented DVT	1



Question 181 of 291

Question Difficulty: Hard

40 years Mr. X is admitted to ICU due to sudden chest pain and dizziness when he was practicing. His Mother died suddenly on age of 40 years due to cardiac problems.

He is hypertensive and diabetic and managed with ramipril and metformin. He smokes 20 cigarettes per day and drinks 25 units of alcohol per week.

Examination shows a systolic murmur at the left lower sternal edge increases with valsalva maneuver and decreases on squatting position, prominent apical impulse and Jugular venous prominent a wave. ECG shows left ventricular hypertrophy. Echocardiography shows left ventricular hypertrophy and septal wall of 2.5 cm with increased ejection fraction.

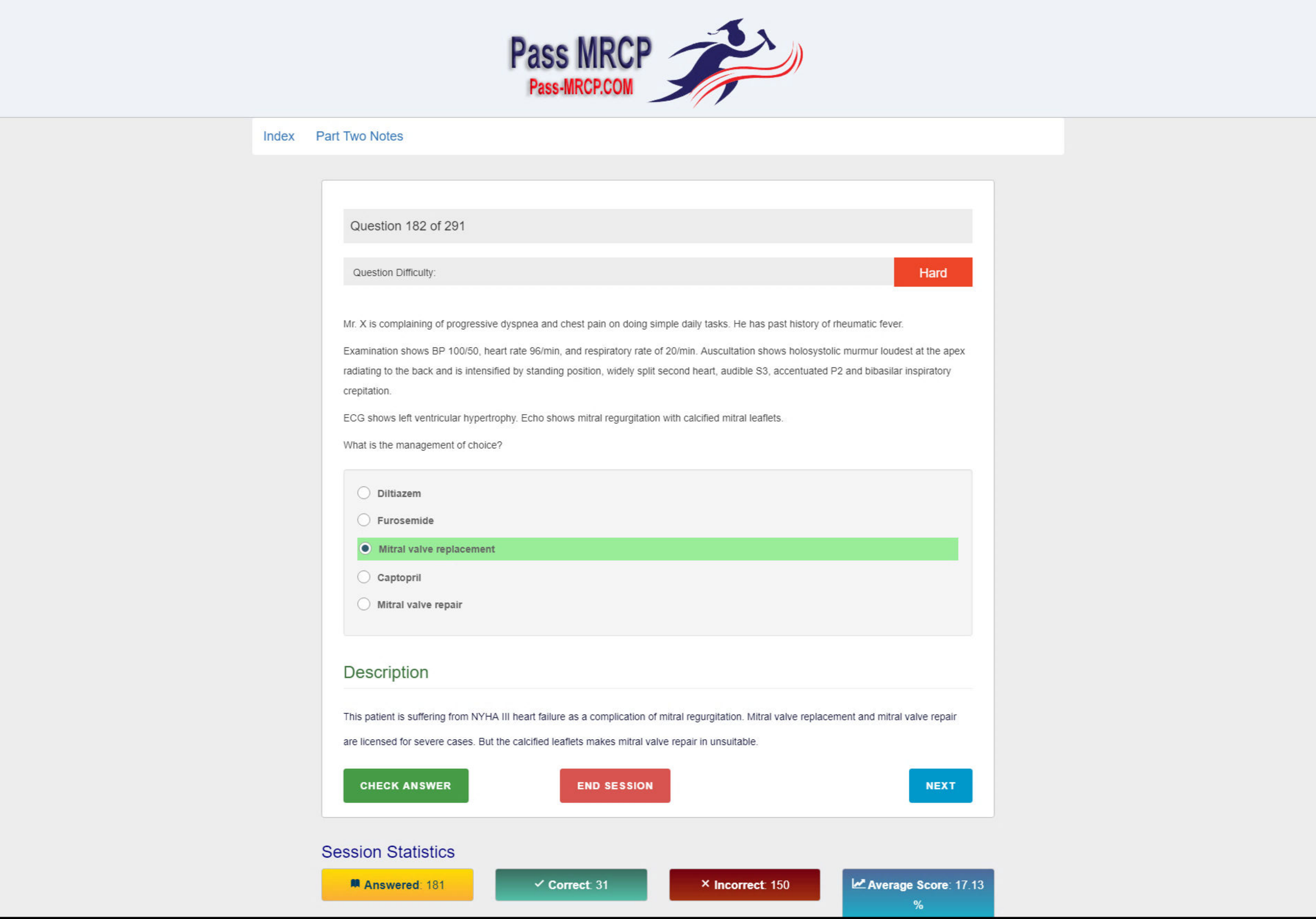
What is the management of choice?

- ○ **Replace metformin with pioglitazone**
- ○ **Add carvedilol**
- ● **Advice for alcohol cession**
- ○ **Stop ramipril**
- ○ **Add isosorbide dinitrate**

- ○ **Replace metformin with pioglitazone**
- ○ **Add carvedilol**
- ● **Advice for alcohol cession**
- ○ **Stop ramipril**
- ○ **Add isosorbide dinitrate**

Description

This patient is suffering from hypertrophic cardiomyopathy proven by family history and echo findings. B-blockers or calcium channel blockers are the initial drug in symptomatic individuals.



Question 182 of 291

Question Difficulty: Hard

Mr. X is complaining of progressive dyspnea and chest pain on doing simple daily tasks. He has past history of rheumatic fever.

Examination shows BP 100/50, heart rate 96/min, and respiratory rate of 20/min. Auscultation shows holosystolic murmur loudest at the apex radiating to the back and is intensified by standing position, widely split second heart, audible S3, accentuated P2 and bibasilar inspiratory crepitation.

ECG shows left ventricular hypertrophy. Echo shows mitral regurgitation with calcified mitral leaflets.

What is the management of choice?

- ○ **Diltiazem**
- ○ **Furosemide**
- ● **Mitral valve replacement**
- ○ **Captopril**
- ○ **Mitral valve repair**

Description

This patient is suffering from NYHA III heart failure as a complication of mitral regurgitation. Mitral valve replacement and mitral valve repair are licensed for severe cases. But the calcified leaflets makes mitral valve repair in unsuitable.

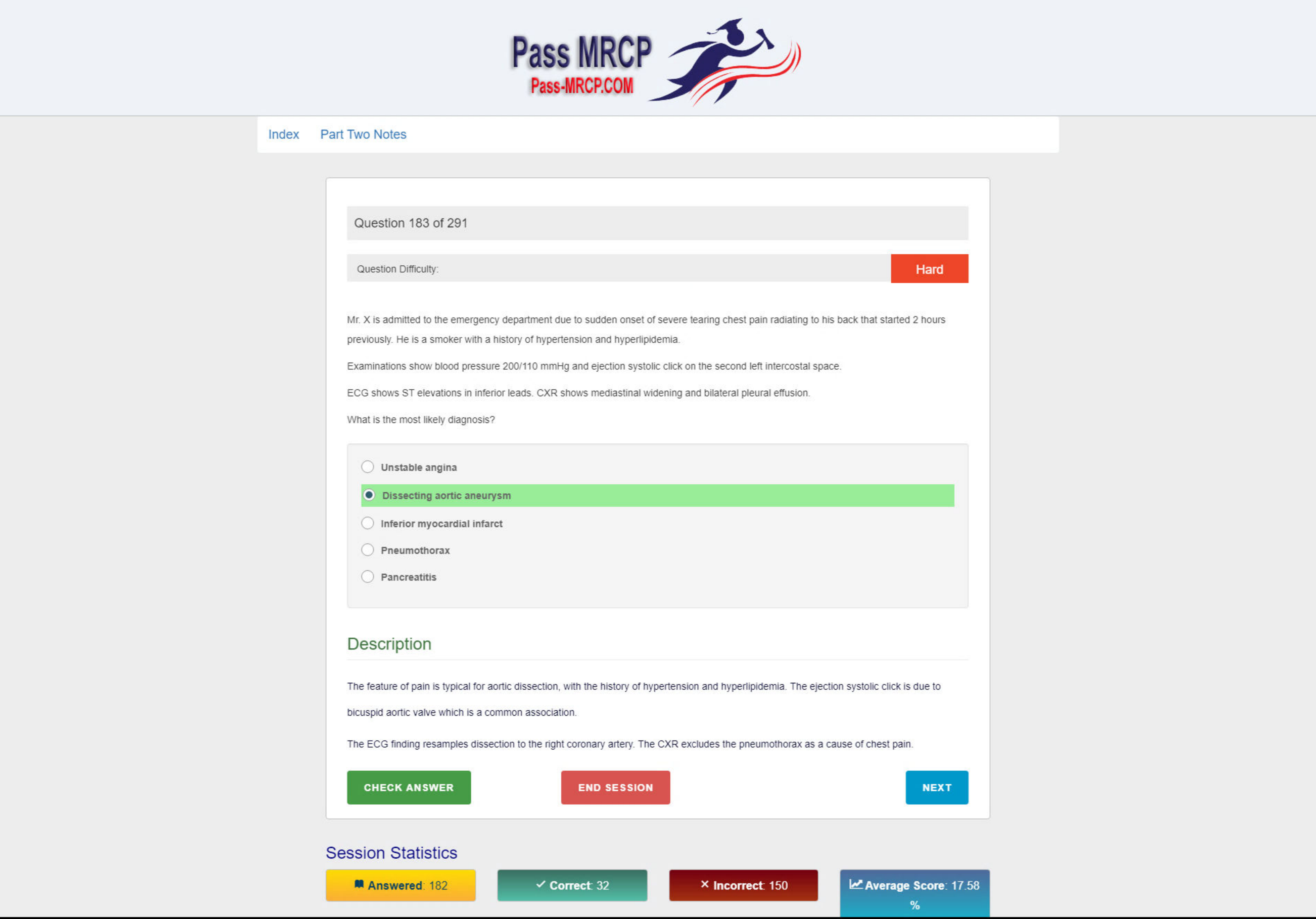
Session Statistics

Answered: 181

✓ **Correct**: 31

× **Incorrect**: 150

Average Score: 17.13 %



Question 183 of 291

Question Difficulty: Hard

Mr. X is admitted to the emergency department due to sudden onset of severe tearing chest pain radiating to his back that started 2 hours previously. He is a smoker with a history of hypertension and hyperlipidemia.

Examinations show blood pressure 200/110 mmHg and ejection systolic click on the second left intercostal space.

ECG shows ST elevations in inferior leads. CXR shows mediastinal widening and bilateral pleural effusion.

What is the most likely diagnosis?

- ○ **Unstable angina**
- ● **Dissecting aortic aneurysm**
- ○ **Inferior myocardial infarct**
- ○ **Pneumothorax**
- ○ **Pancreatitis**

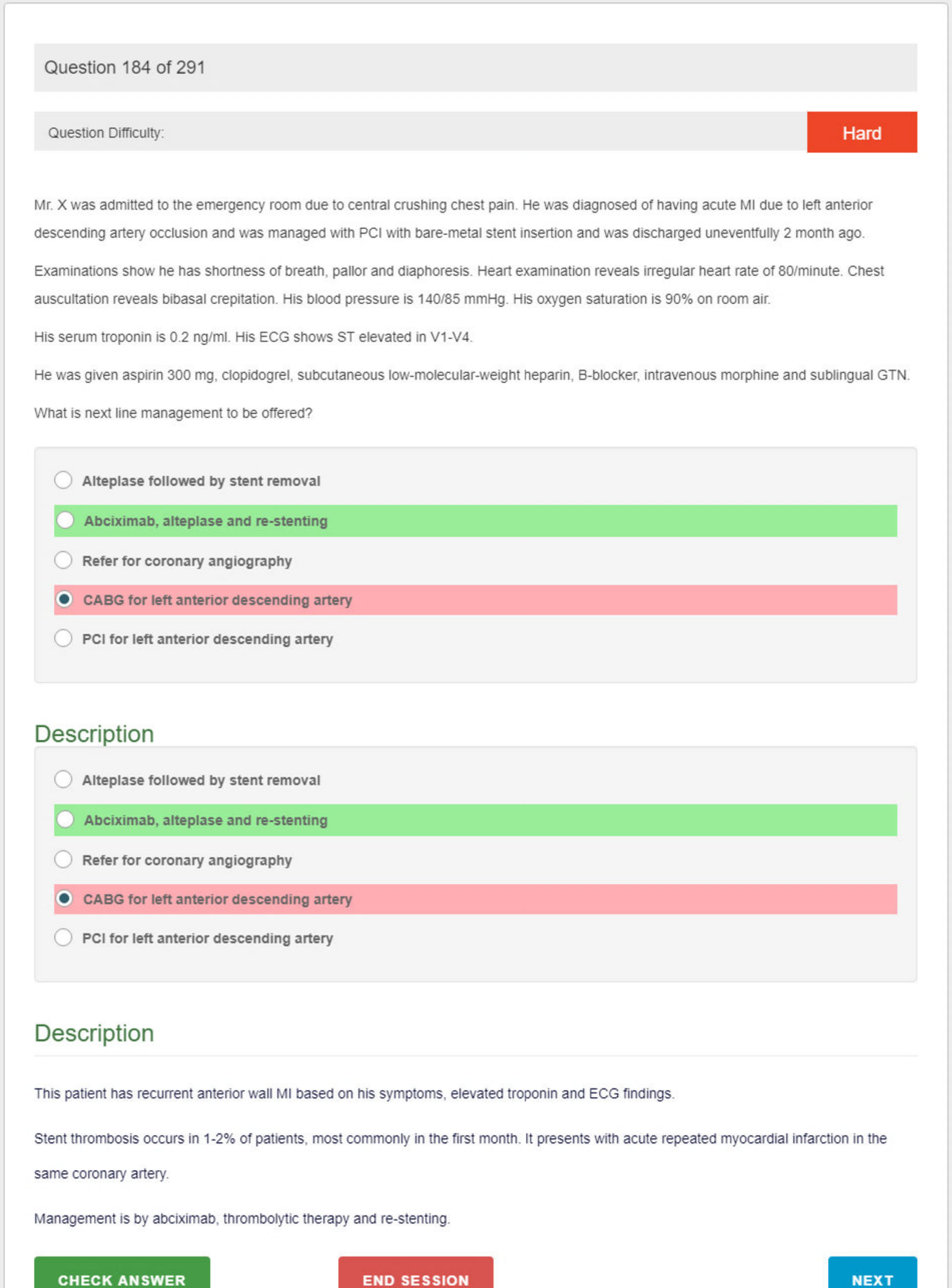
Description

The feature of pain is typical for aortic dissection, with the history of hypertension and hyperlipidemia. The ejection systolic click is due to bicuspid aortic valve which is a common association.

The ECG finding resamples dissection to the right coronary artery. The CXR excludes the pneumothorax as a cause of chest pain.

Session Statistics

Answered: 182
✓ **Correct**: 32
✕ **Incorrect**: 150
Average Score: 17.58 %



Question 184 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the emergency room due to central crushing chest pain. He was diagnosed of having acute MI due to left anterior descending artery occlusion and was managed with PCI with bare-metal stent insertion and was discharged uneventfully 2 month ago.

Examinations show he has shortness of breath, pallor and diaphoresis. Heart examination reveals irregular heart rate of 80/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 140/85 mmHg. His oxygen saturation is 90% on room air.

His serum troponin is 0.2 ng/ml. His ECG shows ST elevated in V1-V4.

He was given aspirin 300 mg, clopidogrel, subcutaneous low-molecular-weight heparin, B-blocker, intravenous morphine and sublingual GTN.

What is next line management to be offered?

- ○ **Alteplase followed by stent removal**
- ○ **Abciximab, alteplase and re-stenting**
- ○ **Refer for coronary angiography**
- ● **CABG for left anterior descending artery**
- ○ **PCI for left anterior descending artery**

Description

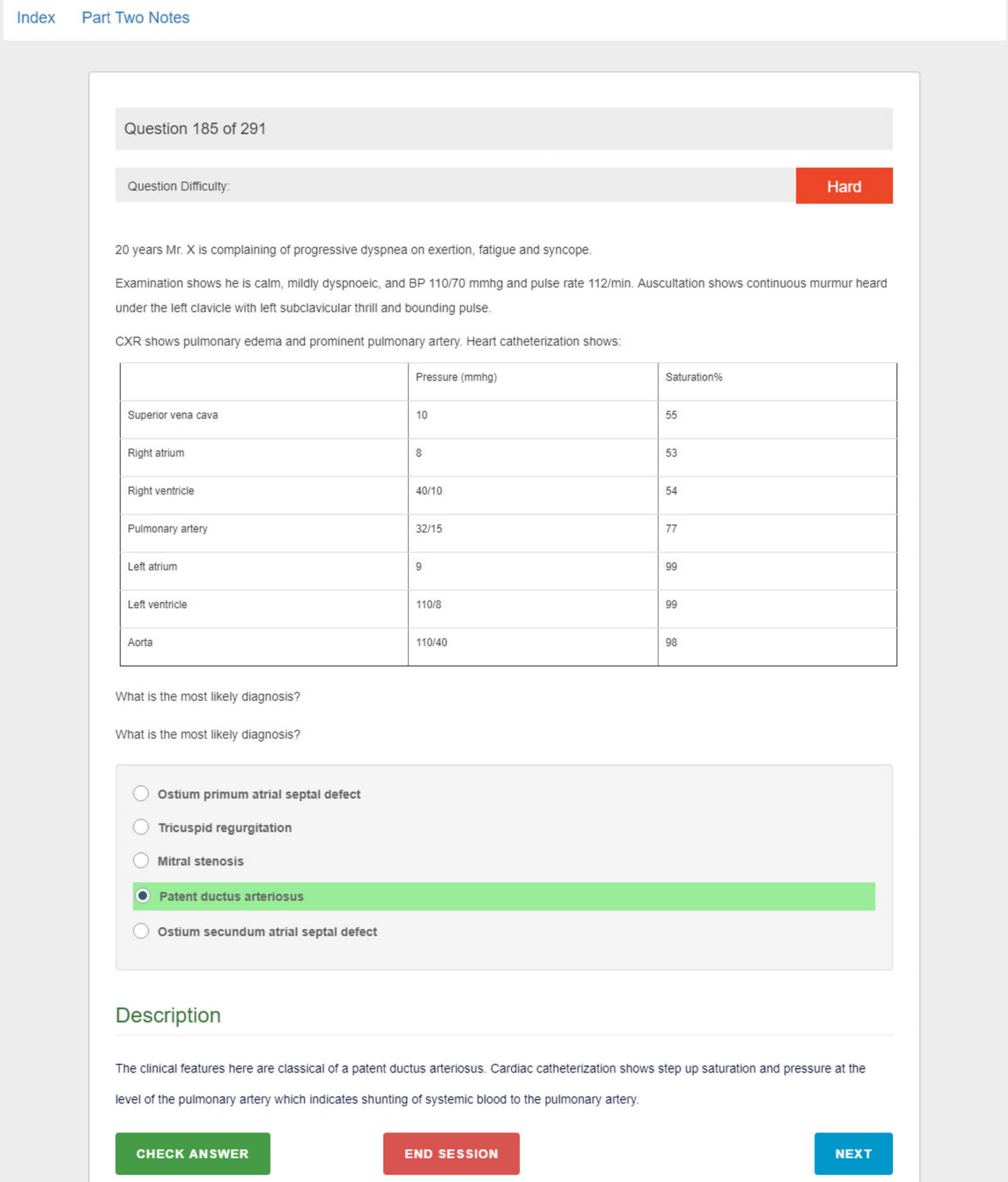
- ○ **Alteplase followed by stent removal**
- ○ **Abciximab, alteplase and re-stenting**
- ○ **Refer for coronary angiography**
- ● **CABG for left anterior descending artery**
- ○ **PCI for left anterior descending artery**

Description

This patient has recurrent anterior wall MI based on his symptoms, elevated troponin and ECG findings.

Stent thrombosis occurs in 1-2% of patients, most commonly in the first month. It presents with acute repeated myocardial infarction in the same coronary artery.

Management is by abciximab, thrombolytic therapy and re-stenting.



Question 185 of 291

Question Difficulty: Hard

20 years Mr. X is complaining of progressive dyspnea on exertion, fatigue and syncope.

Examination shows he is calm, mildly dyspnoeic, and BP 110/70 mmhg and pulse rate 112/min. Auscultation shows continuous murmur heard under the left clavicle with left subclavicular thrill and bounding pulse.

CXR shows pulmonary edema and prominent pulmonary artery. Heart catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	8	53
Right ventricle	40/10	54
Pulmonary artery	32/15	77
Left atrium	9	99
Left ventricle	110/8	99
Aorta	110/40	98

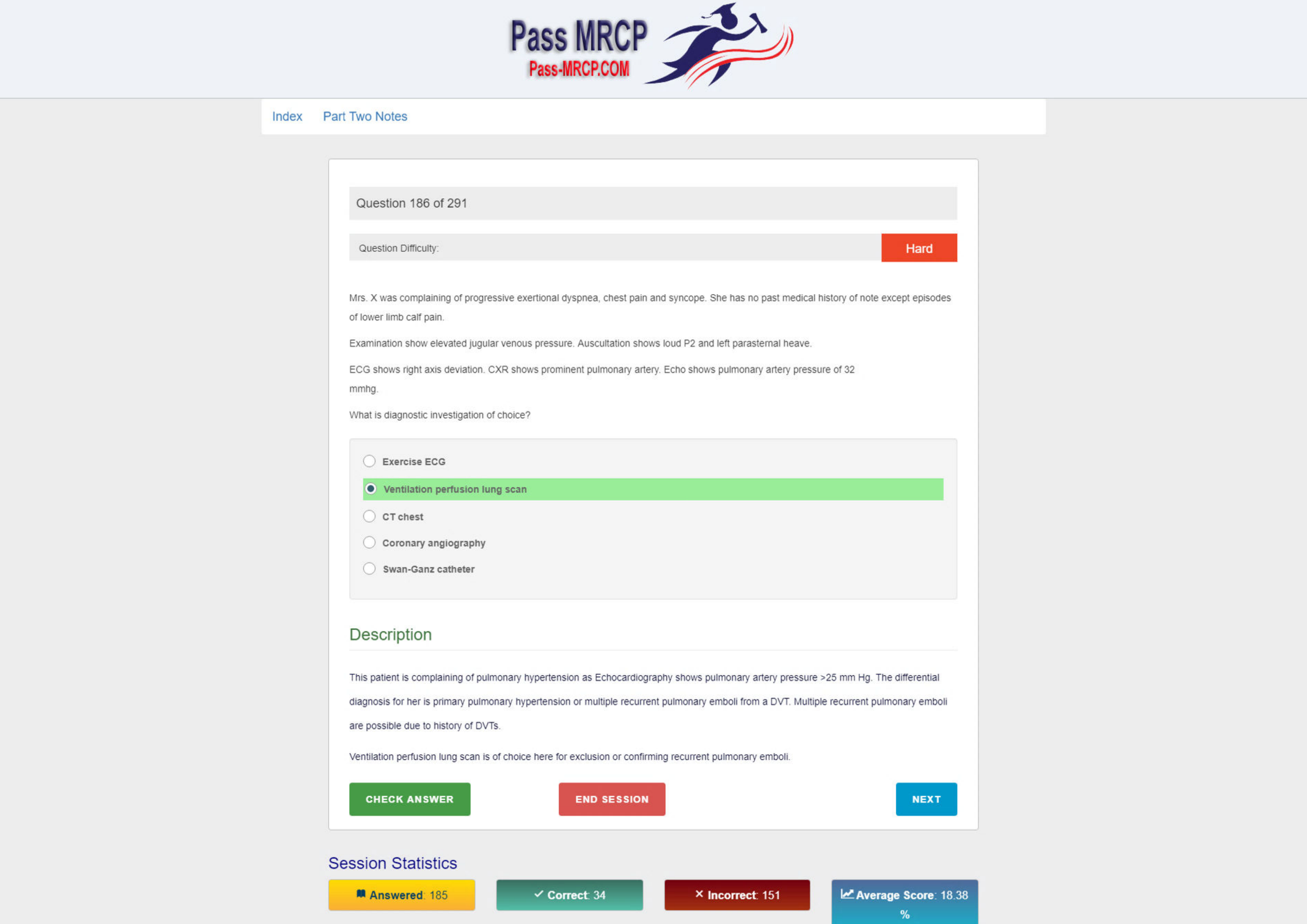
What is the most likely diagnosis?

What is the most likely diagnosis?

- ○ **Ostium primum atrial septal defect**
- ○ **Tricuspid regurgitation**
- ○ **Mitral stenosis**
- ● **Patent ductus arteriosus**
- ○ **Ostium secundum atrial septal defect**

Description

The clinical features here are classical of a patent ductus arteriosus. Cardiac catheterization shows step up saturation and pressure at the level of the pulmonary artery which indicates shunting of systemic blood to the pulmonary artery.



Question 186 of 291

Question Difficulty: Hard

Mrs. X was complaining of progressive exertional dyspnea, chest pain and syncope. She has no past medical history of note except episodes of lower limb calf pain.

Examination show elevated jugular venous pressure. Auscultation shows loud P2 and left parasternal heave.

ECG shows right axis deviation. CXR shows prominent pulmonary artery. Echo shows pulmonary artery pressure of 32 mmhg.

What is diagnostic investigation of choice?

○ Exercise ECG
● Ventilation perfusion lung scan
○ CT chest
○ Coronary angiography
○ Swan-Ganz catheter

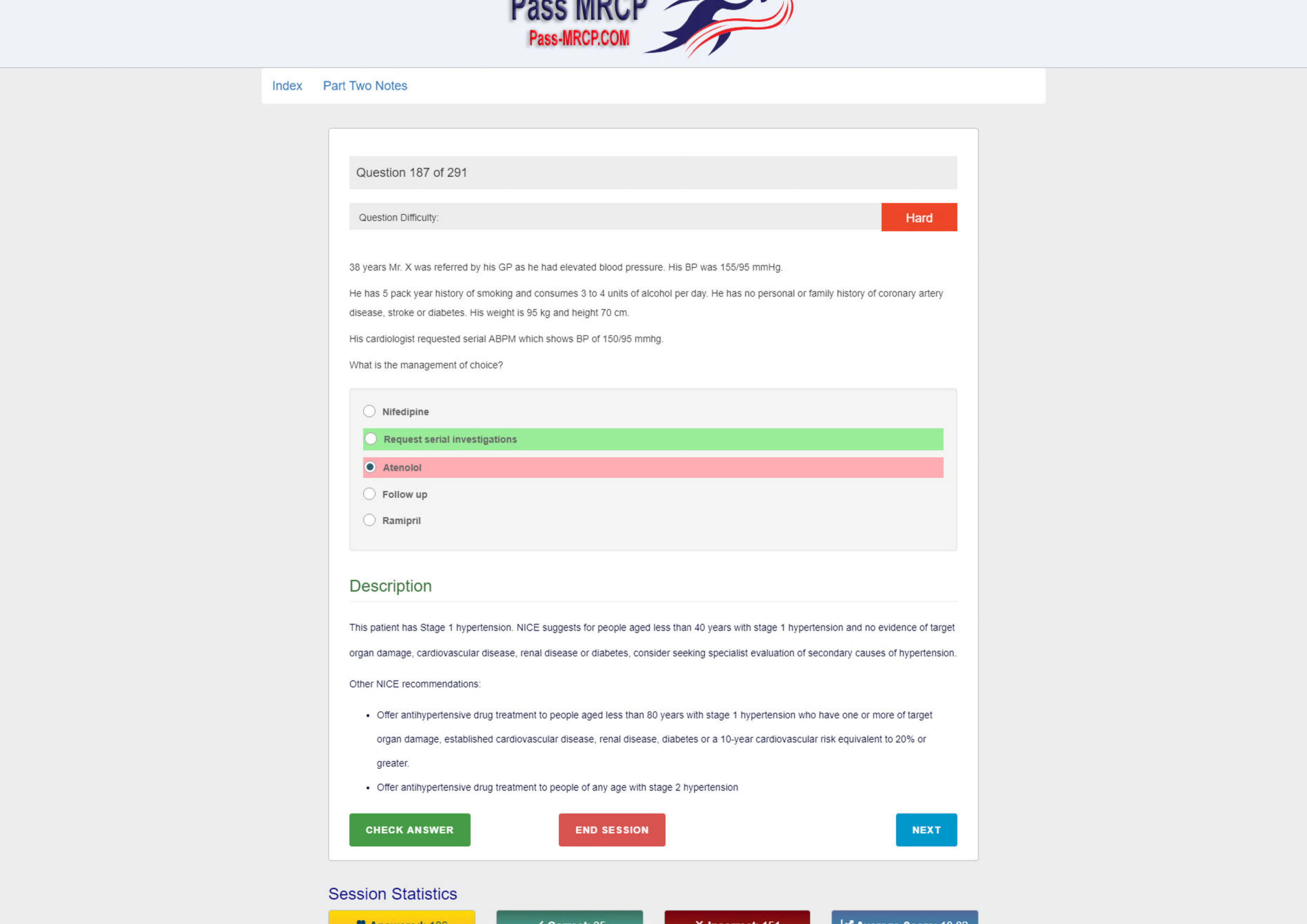
Description

This patient is complaining of pulmonary hypertension as Echocardiography shows pulmonary artery pressure >25 mm Hg. The differential diagnosis for her is primary pulmonary hypertension or multiple recurrent pulmonary emboli from a DVT. Multiple recurrent pulmonary emboli are possible due to history of DVTs.

Ventilation perfusion lung scan is of choice here for exclusion or confirming recurrent pulmonary emboli.

Session Statistics

Answered: 185
✓ Correct: 34
✕ Incorrect: 151
Average Score: 18.38 %



Question 187 of 291

Question Difficulty: **Hard**

38 years Mr. X was referred by his GP as he had elevated blood pressure. His BP was 155/95 mmHg.

He has 5 pack year history of smoking and consumes 3 to 4 units of alcohol per day. He has no personal or family history of coronary artery disease, stroke or diabetes. His weight is 95 kg and height 70 cm.

His cardiologist requested serial ABPM which shows BP of 150/95 mmhg.

What is the management of choice?

○ **Nifedipine**
○ **Request serial investigations**
● **Atenolol**
○ **Follow up**
○ **Ramipril**

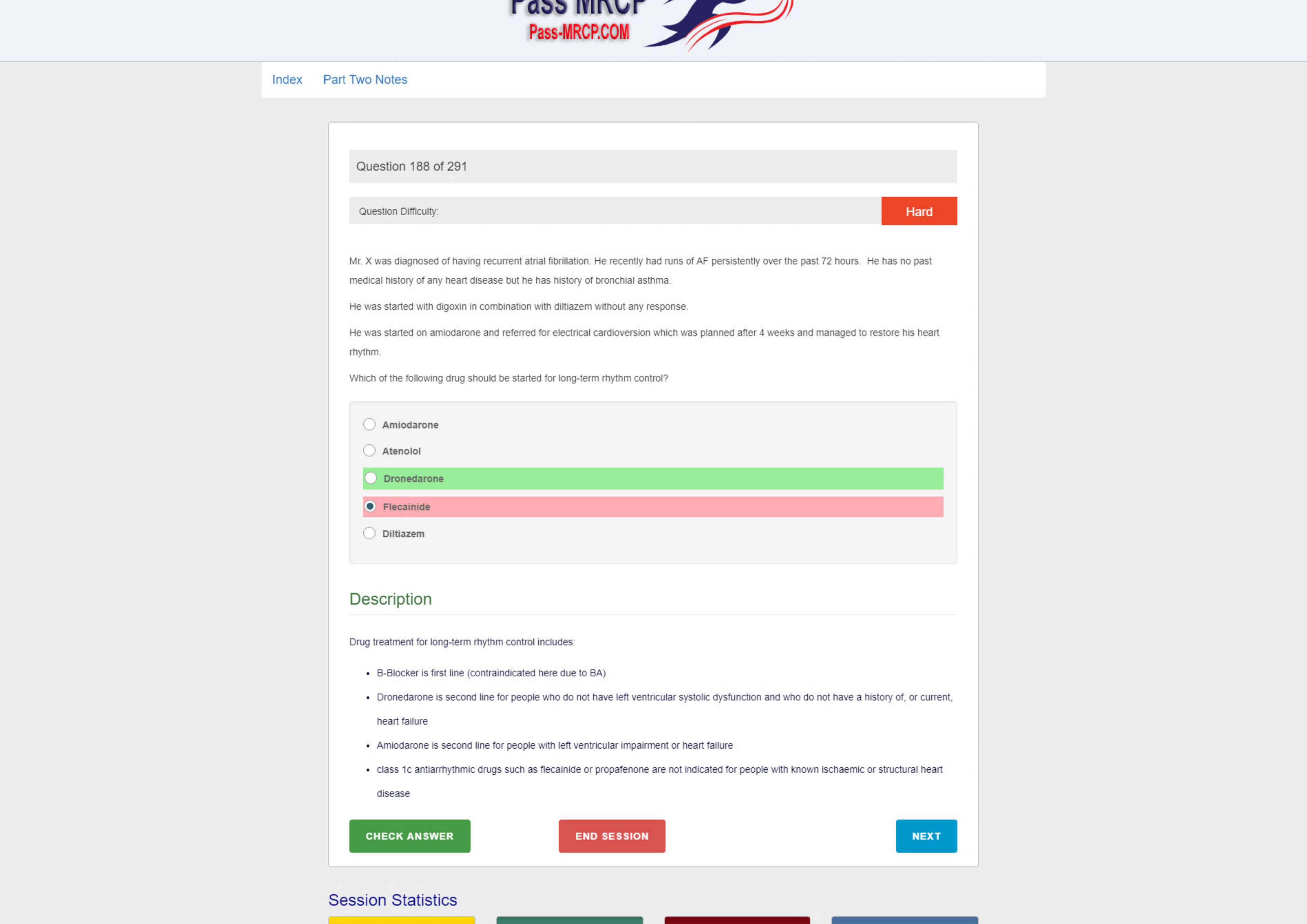
Description

This patient has Stage 1 hypertension. NICE suggests for people aged less than 40 years with stage 1 hypertension and no evidence of target organ damage, cardiovascular disease, renal disease or diabetes, consider seeking specialist evaluation of secondary causes of hypertension.

Other NICE recommendations:

- Offer antihypertensive drug treatment to people aged less than 80 years with stage 1 hypertension who have one or more of target organ damage, established cardiovascular disease, renal disease, diabetes or a 10-year cardiovascular risk equivalent to 20% or greater.
- Offer antihypertensive drug treatment to people of any age with stage 2 hypertension

Session Statistics



Question 188 of 291

Question Difficulty: Hard

Mr. X was diagnosed of having recurrent atrial fibrillation. He recently had runs of AF persistently over the past 72 hours. He has no past medical history of any heart disease but he has history of bronchial asthma.

He was started with digoxin in combination with diltiazem without any response.

He was started on amiodarone and referred for electrical cardioversion which was planned after 4 weeks and managed to restore his heart rhythm.

Which of the following drug should be started for long-term rhythm control?

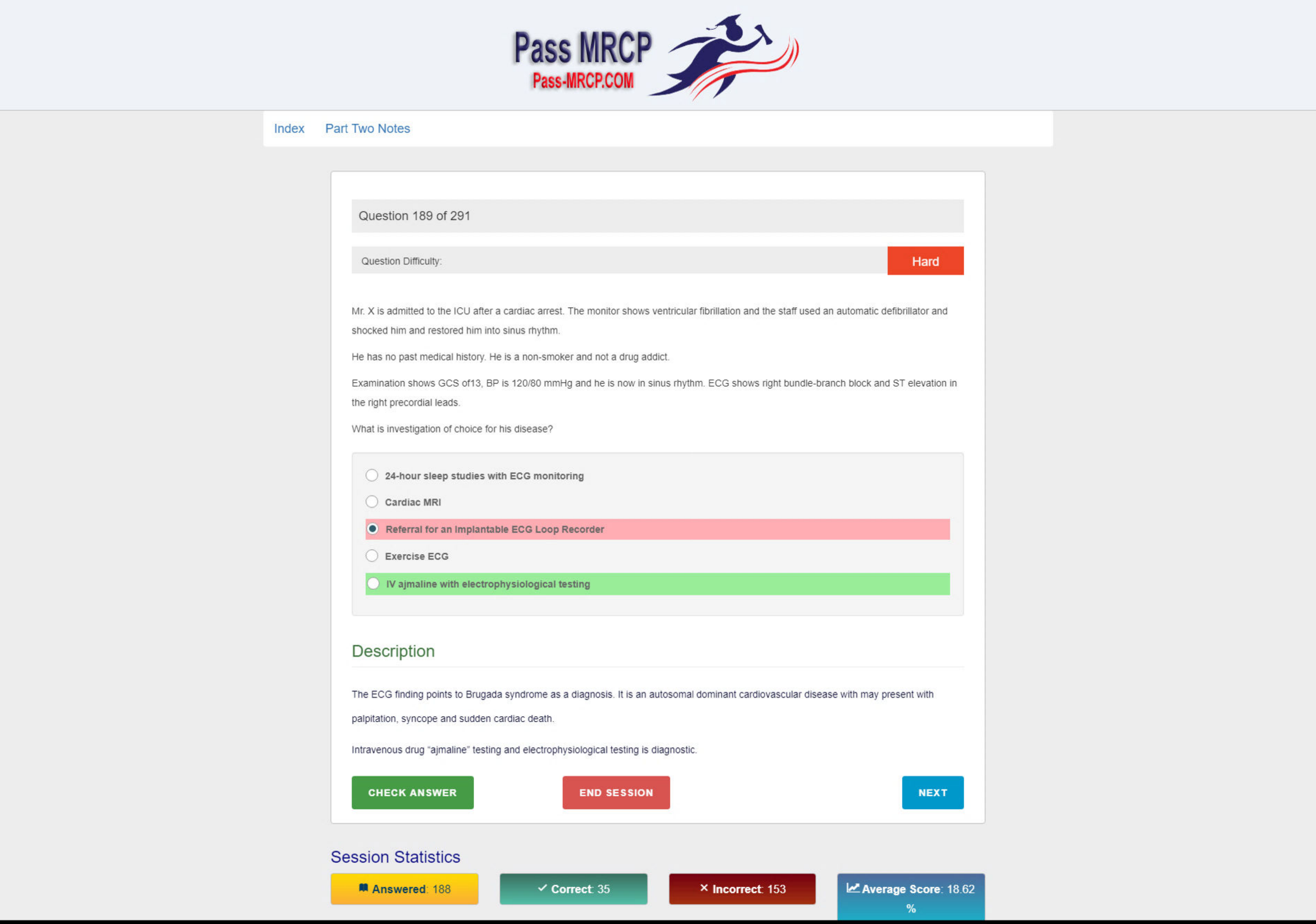
○ Amiodarone
○ Atenolol
○ Dronedarone
● Flecainide
○ Diltiazem

Description

Drug treatment for long-term rhythm control includes:

- B-Blocker is first line (contraindicated here due to BA)
- Dronedarone is second line for people who do not have left ventricular systolic dysfunction and who do not have a history of, or current, heart failure
- Amiodarone is second line for people with left ventricular impairment or heart failure
- class 1c antiarrhythmic drugs such as flecainide or propafenone are not indicated for people with known ischaemic or structural heart disease

Session Statistics



Question 189 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the ICU after a cardiac arrest. The monitor shows ventricular fibrillation and the staff used an automatic defibrillator and shocked him and restored him into sinus rhythm.

He has no past medical history. He is a non-smoker and not a drug addict.

Examination shows GCS of13, BP is 120/80 mmHg and he is now in sinus rhythm. ECG shows right bundle-branch block and ST elevation in the right precordial leads.

What is investigation of choice for his disease?

- ○ **24-hour sleep studies with ECG monitoring**
- ○ **Cardiac MRI**
- ● **Referral for an Implantable ECG Loop Recorder**
- ○ **Exercise ECG**
- ○ **IV ajmaline with electrophysiological testing**

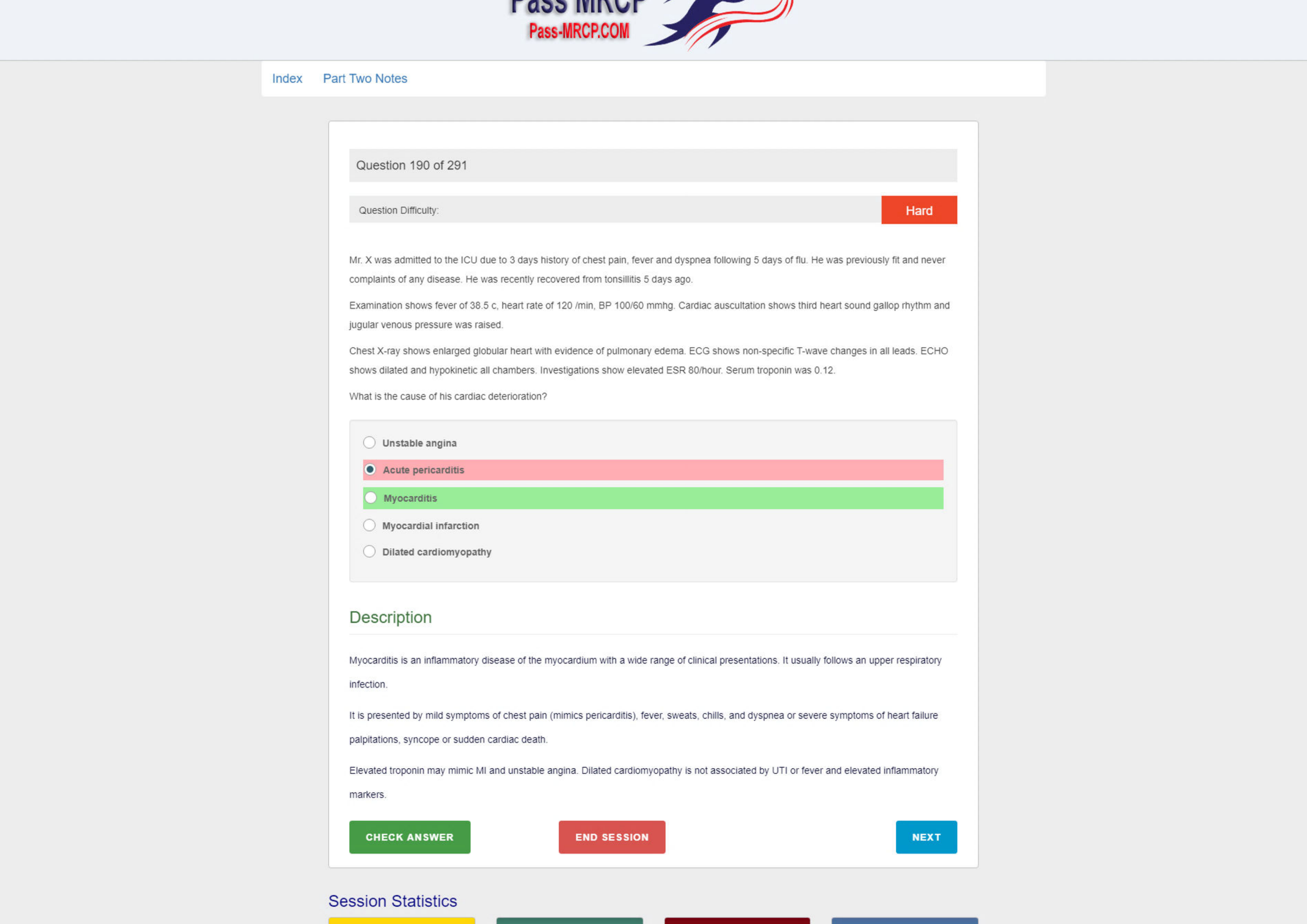
Description

The ECG finding points to Brugada syndrome as a diagnosis. It is an autosomal dominant cardiovascular disease with may present with palpitation, syncope and sudden cardiac death.

Intravenous drug “ajmaline” testing and electrophysiological testing is diagnostic.

Session Statistics

Answered: 188
Correct: 35
Incorrect: 153
Average Score: 18.62 %



Question 190 of 291

Question Difficulty: Hard

Mr. X was admitted to the ICU due to 3 days history of chest pain, fever and dyspnea following 5 days of flu. He was previously fit and never complaints of any disease. He was recently recovered from tonsillitis 5 days ago.

Examination shows fever of 38.5 c, heart rate of 120 /min, BP 100/60 mmhg. Cardiac auscultation shows third heart sound gallop rhythm and jugular venous pressure was raised.

Chest X-ray shows enlarged globular heart with evidence of pulmonary edema. ECG shows non-specific T-wave changes in all leads. ECHO shows dilated and hypokinetic all chambers. Investigations show elevated ESR 80/hour. Serum troponin was 0.12.

What is the cause of his cardiac deterioration?

- ○ **Unstable angina**
- ● **Acute pericarditis**
- ○ **Myocarditis**
- ○ **Myocardial infarction**
- ○ **Dilated cardiomyopathy**

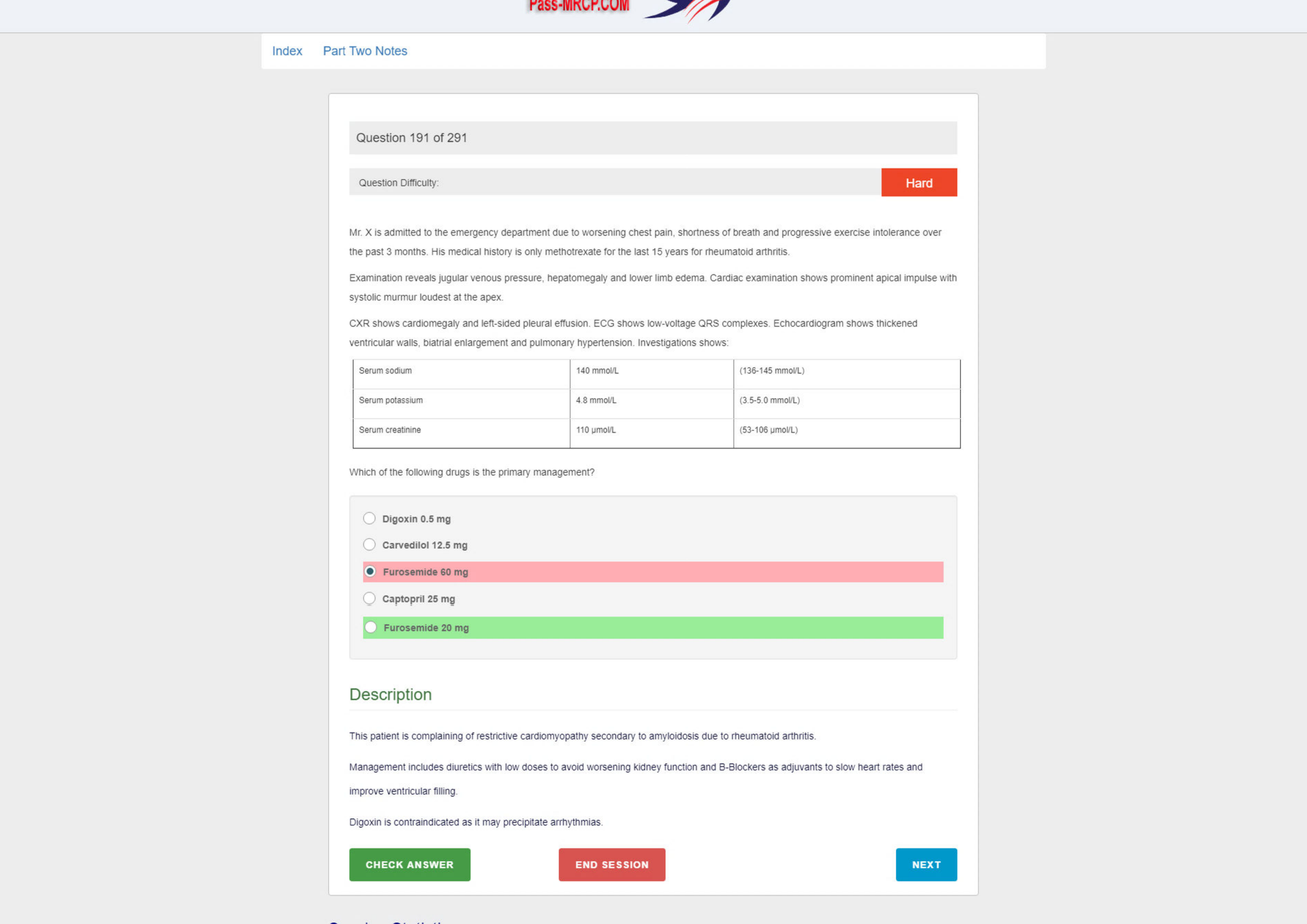
Description

Myocarditis is an inflammatory disease of the myocardium with a wide range of clinical presentations. It usually follows an upper respiratory infection.

It is presented by mild symptoms of chest pain (mimics pericarditis), fever, sweats, chills, and dyspnea or severe symptoms of heart failure palpitations, syncope or sudden cardiac death.

Elevated troponin may mimic MI and unstable angina. Dilated cardiomyopathy is not associated by UTI or fever and elevated inflammatory markers.

Session Statistics



Question 191 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the emergency department due to worsening chest pain, shortness of breath and progressive exercise intolerance over the past 3 months. His medical history is only methotrexate for the last 15 years for rheumatoid arthritis.

Examination reveals jugular venous pressure, hepatomegaly and lower limb edema. Cardiac examination shows prominent apical impulse with systolic murmur loudest at the apex.

CXR shows cardiomegaly and left-sided pleural effusion. ECG shows low-voltage QRS complexes. Echocardiogram shows thickened ventricular walls, biatrial enlargement and pulmonary hypertension. Investigations shows:

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	110 µmol/L	(53-106 µmol/L)

Which of the following drugs is the primary management?

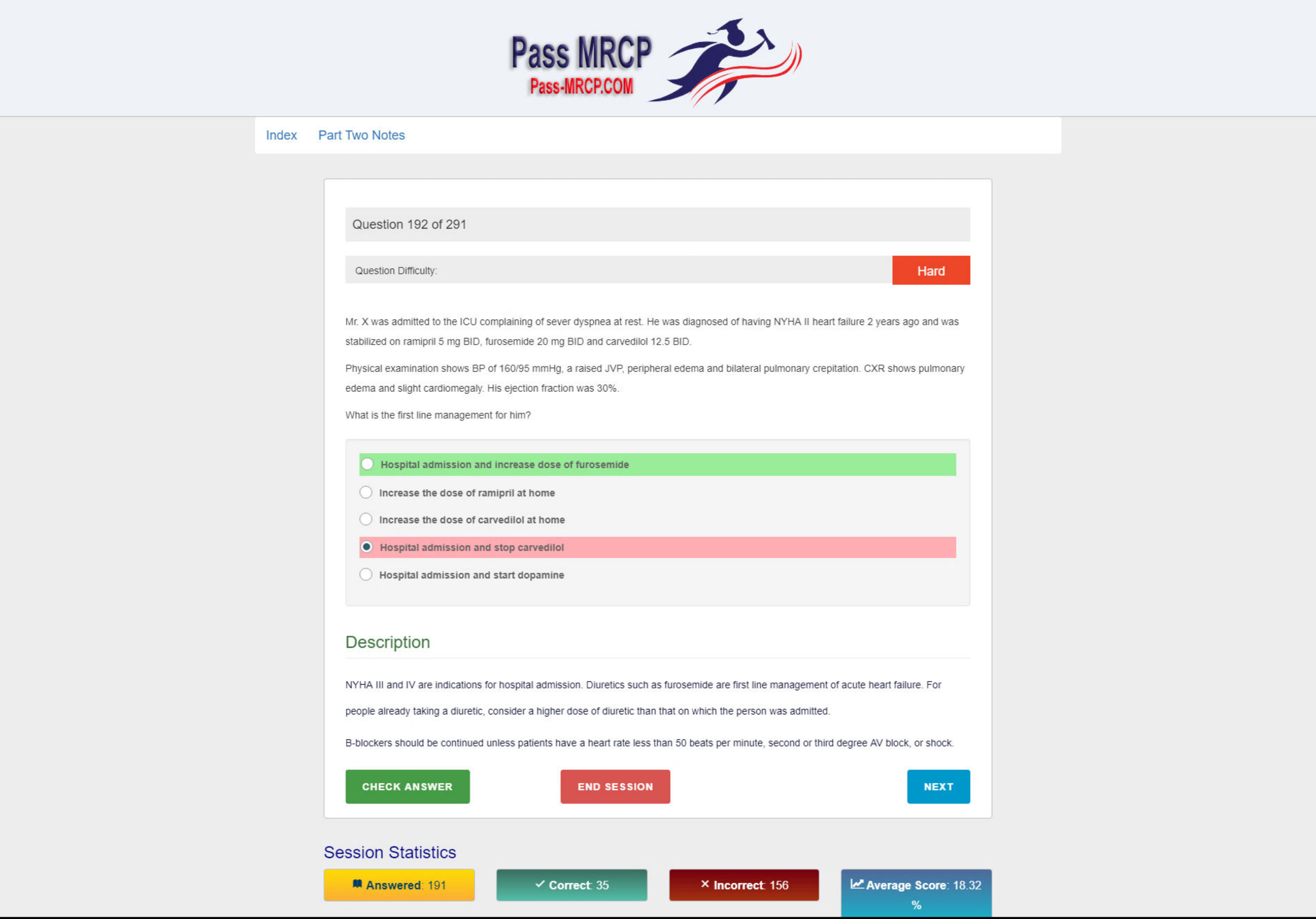
- ○ **Digoxin 0.5 mg**
- ○ **Carvedilol 12.5 mg**
- ● **Furosemide 60 mg**
- ○ **Captopril 25 mg**
- ○ **Furosemide 20 mg**

Description

This patient is complaining of restrictive cardiomyopathy secondary to amyloidosis due to rheumatoid arthritis.

Management includes diuretics with low doses to avoid worsening kidney function and B-Blockers as adjuvants to slow heart rates and improve ventricular filling.

Digoxin is contraindicated as it may precipitate arrhythmias.



Question 192 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the ICU complaining of sever dyspnea at rest. He was diagnosed of having NYHA II heart failure 2 years ago and was stabilized on ramipril 5 mg BID, furosemide 20 mg BID and carvedilol 12.5 BID.

Physical examination shows BP of 160/95 mmHg, a raised JVP, peripheral edema and bilateral pulmonary crepitation. CXR shows pulmonary edema and slight cardiomegaly. His ejection fraction was 30%.

What is the first line management for him?

- ○ **Hospital admission and increase dose of furosemide**
- ○ **Increase the dose of ramipril at home**
- ○ **Increase the dose of carvedilol at home**
- ● **Hospital admission and stop carvedilol**
- ○ **Hospital admission and start dopamine**

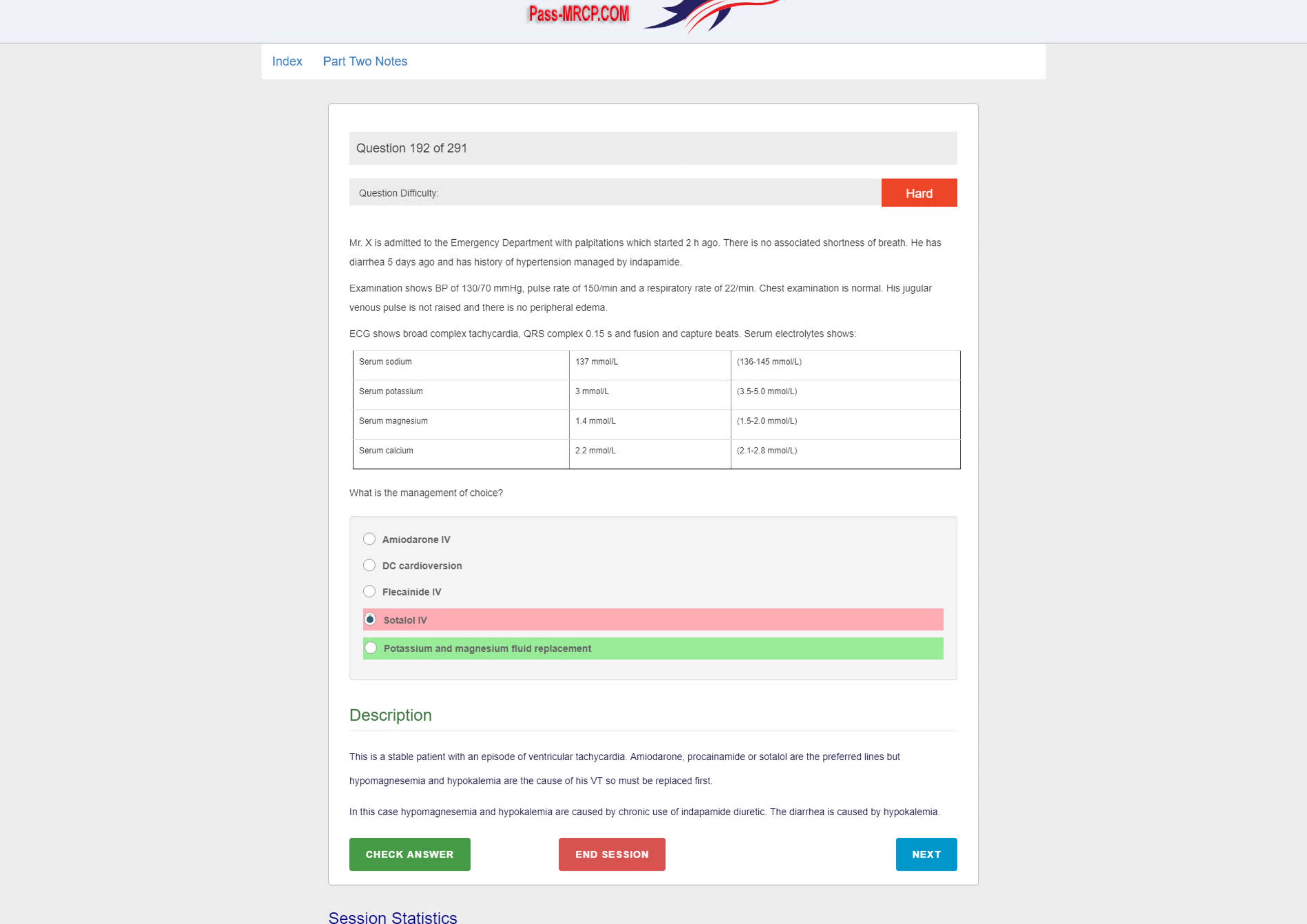
Description

NYHA III and IV are indications for hospital admission. Diuretics such as furosemide are first line management of acute heart failure. For people already taking a diuretic, consider a higher dose of diuretic than that on which the person was admitted.

B-blockers should be continued unless patients have a heart rate less than 50 beats per minute, second or third degree AV block, or shock.

Session Statistics

Answered: 191
Correct: 35
Incorrect: 156
Average Score: 18.32 %



Question 192 of 291

Question Difficulty: Hard

Mr. X is admitted to the Emergency Department with palpitations which started 2 h ago. There is no associated shortness of breath. He has diarrhea 5 days ago and has history of hypertension managed by indapamide.

Examination shows BP of 130/70 mmHg, pulse rate of 150/min and a respiratory rate of 22/min. Chest examination is normal. His jugular venous pulse is not raised and there is no peripheral edema.

ECG shows broad complex tachycardia, QRS complex 0.15 s and fusion and capture beats. Serum electrolytes shows:

Serum sodium	137 mmol/L	(136-145 mmol/L)
Serum potassium	3 mmol/L	(3.5-5.0 mmol/L)
Serum magnesium	1.4 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.2 mmol/L	(2.1-2.8 mmol/L)

What is the management of choice?

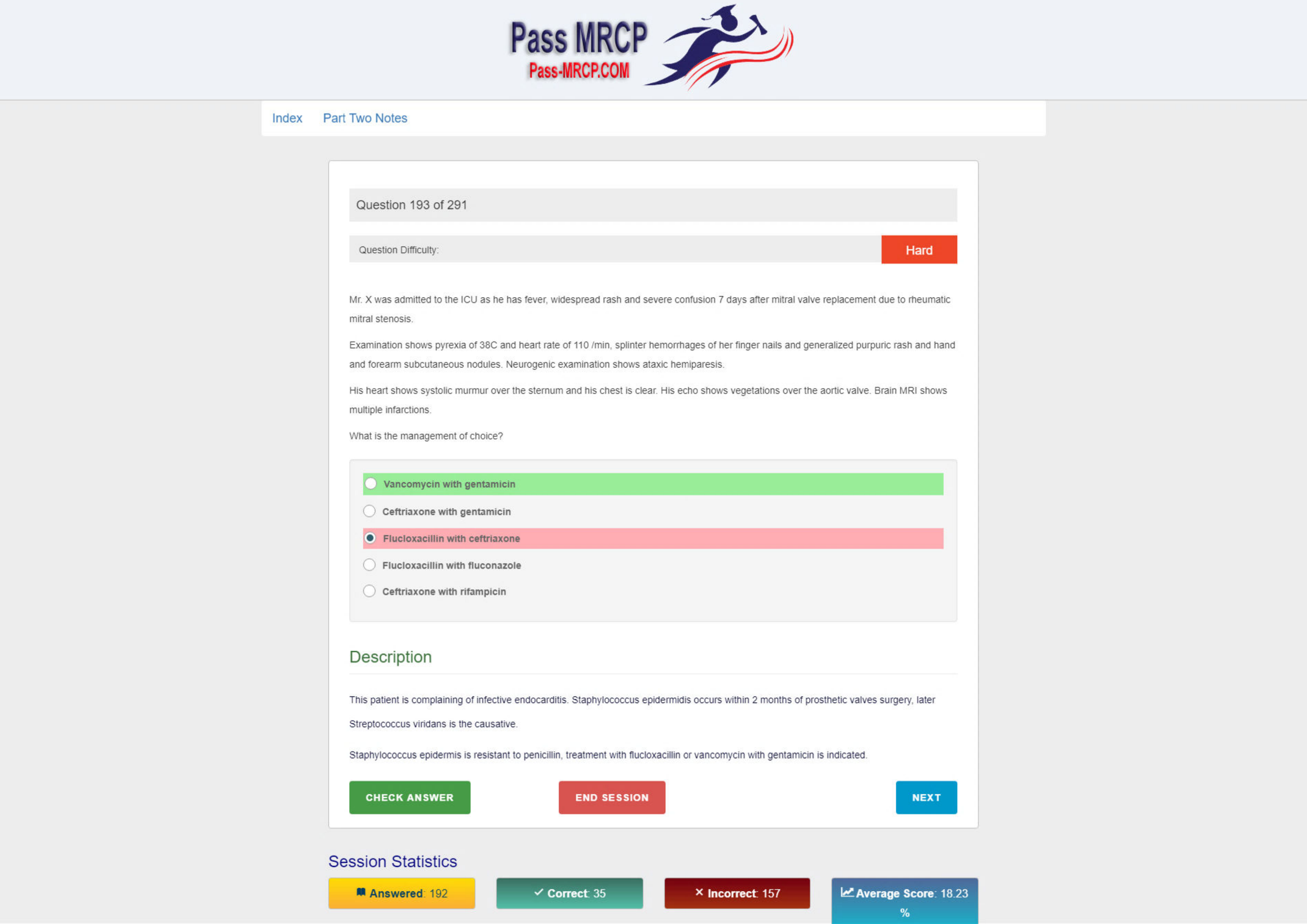
- ○ **Amiodarone IV**
- ○ **DC cardioversion**
- ○ **Flecainide IV**
- ● **Sotalol IV**
- ○ **Potassium and magnesium fluid replacement**

Description

This is a stable patient with an episode of ventricular tachycardia. Amiodarone, procainamide or sotalol are the preferred lines but hypomagnesemia and hypokalemia are the cause of his VT so must be replaced first.

In this case hypomagnesemia and hypokalemia are caused by chronic use of indapamide diuretic. The diarrhea is caused by hypokalemia.

Session Statistics



Question 193 of 291

Question Difficulty: Hard

Mr. X was admitted to the ICU as he has fever, widespread rash and severe confusion 7 days after mitral valve replacement due to rheumatic mitral stenosis.

Examination shows pyrexia of 38C and heart rate of 110 /min, splinter hemorrhages of her finger nails and generalized purpuric rash and hand and forearm subcutaneous nodules. Neurogenic examination shows ataxic hemiparesis.

His heart shows systolic murmur over the sternum and his chest is clear. His echo shows vegetations over the aortic valve. Brain MRI shows multiple infarctions.

What is the management of choice?

- ○ **Vancomycin with gentamicin**
- ○ **Ceftriaxone with gentamicin**
- ● **Flucloxacillin with ceftriaxone**
- ○ **Flucloxacillin with fluconazole**
- ○ **Ceftriaxone with rifampicin**

Description

This patient is complaining of infective endocarditis. Staphylococcus epidermidis occurs within 2 months of prosthetic valves surgery, later Streptococcus viridans is the causative.

Staphylococcus epidermis is resistant to penicillin, treatment with flucloxacillin or vancomycin with gentamicin is indicated.

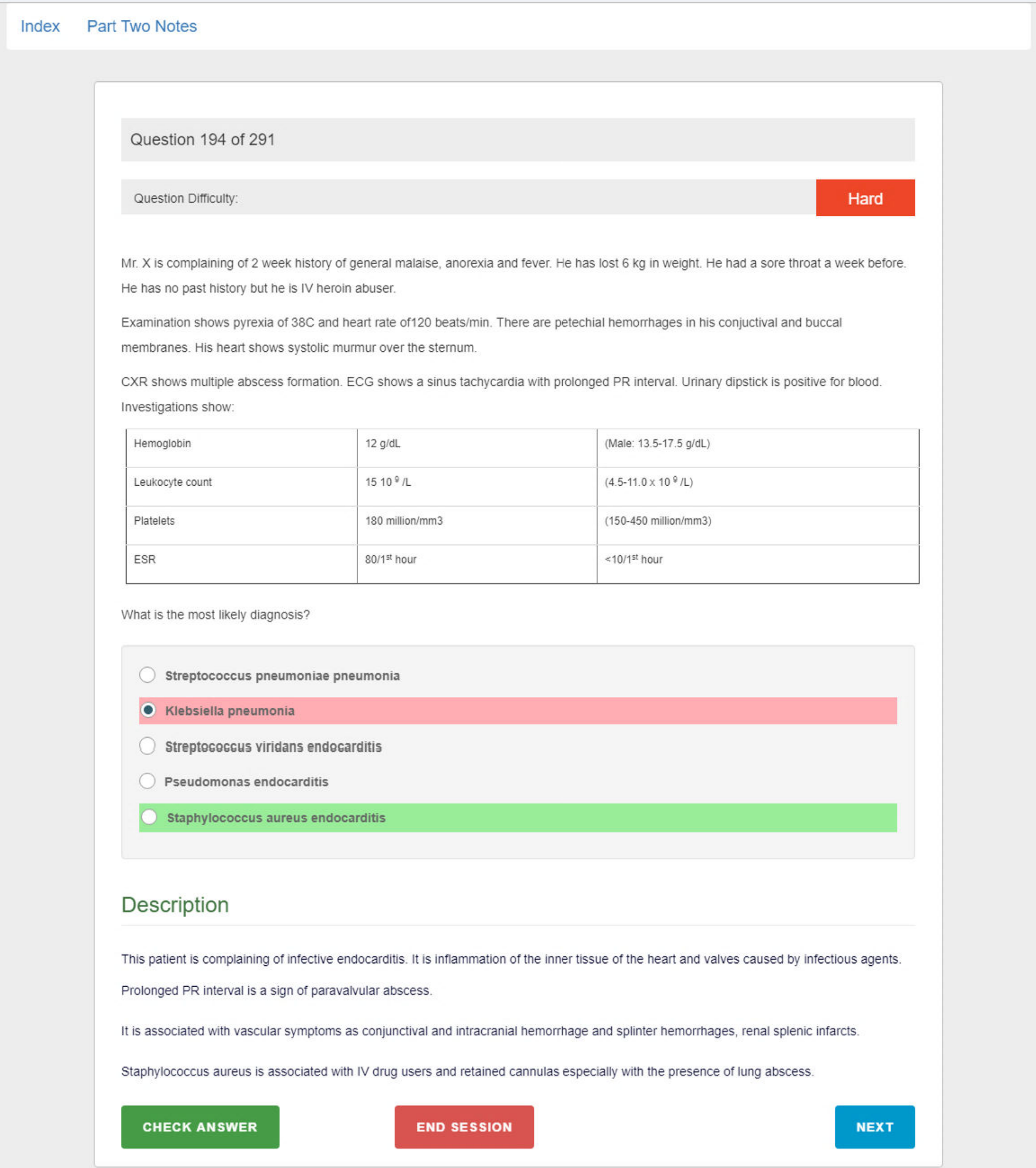
Session Statistics

Answered: 192

✓ **Correct**: 35

× **Incorrect**: 157

Average Score: 18.23 %



Question 194 of 291

Question Difficulty: **Hard**

Mr. X is complaining of 2 week history of general malaise, anorexia and fever. He has lost 6 kg in weight. He had a sore throat a week before. He has no past history but he is IV heroin abuser.

Examination shows pyrexia of 38C and heart rate of120 beats/min. There are petechial hemorrhages in his conjuctival and buccal membranes. His heart shows systolic murmur over the sternum.

CXR shows multiple abscess formation. ECG shows a sinus tachycardia with prolonged PR interval. Urinary dipstick is positive for blood. Investigations show:

Hemoglobin	12 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	15 10^9/L	(4.5-11.0 x 10^9/L)
Platelets	180 million/mm3	(150-450 million/mm3)
ESR	80/1st hour	<10/1st hour

What is the most likely diagnosis?

○ **Streptococcus pneumoniae pneumonia**
● **Klebsiella pneumonia**
○ **Streptococcus viridans endocarditis**
○ **Pseudomonas endocarditis**
○ **Staphylococcus aureus endocarditis**

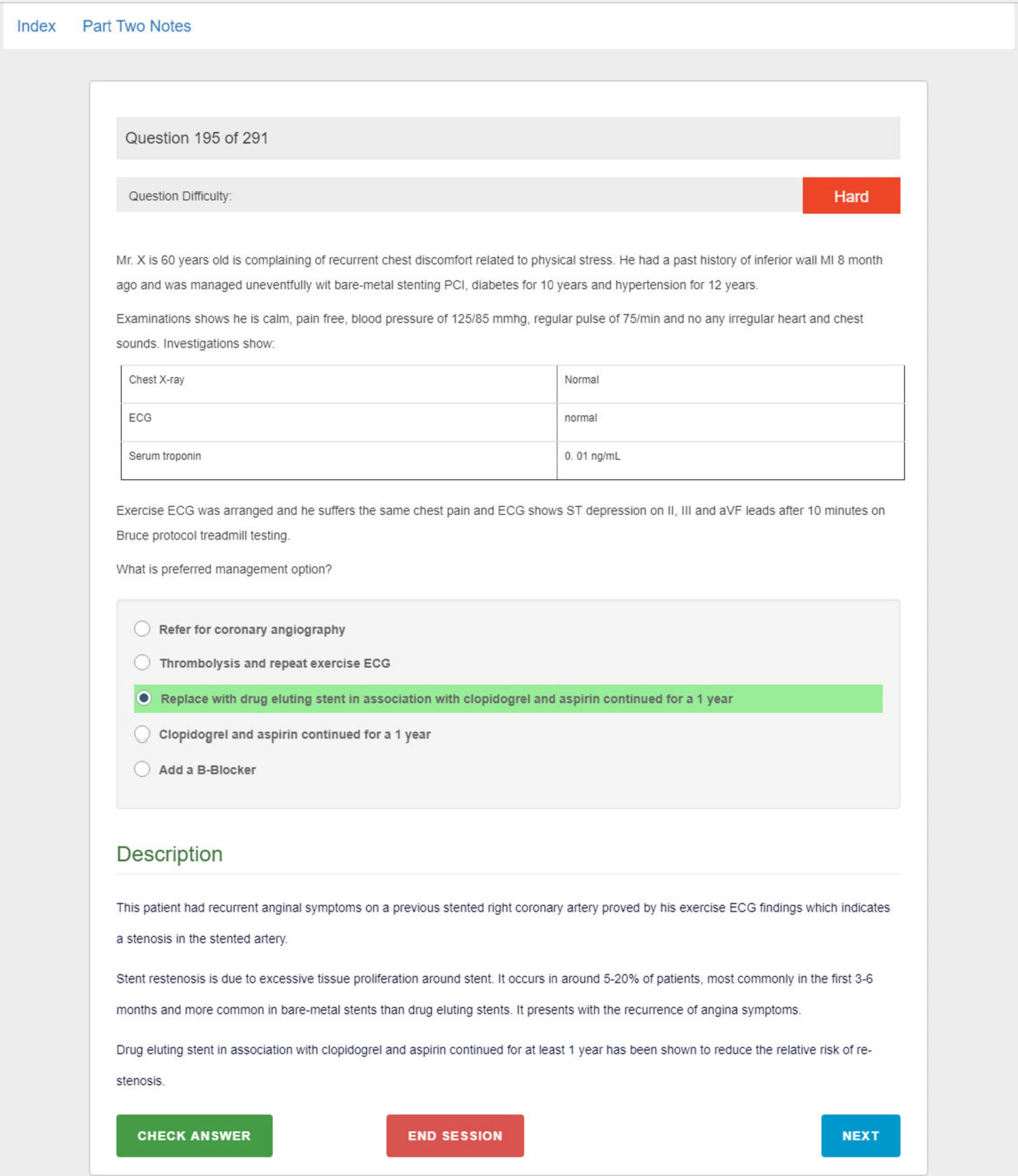
Description

This patient is complaining of infective endocarditis. It is inflammation of the inner tissue of the heart and valves caused by infectious agents.

Prolonged PR interval is a sign of paravalvular abscess.

It is associated with vascular symptoms as conjunctival and intracranial hemorrhage and splinter hemorrhages, renal splenic infarcts.

Staphylococcus aureus is associated with IV drug users and retained cannulas especially with the presence of lung abscess.



Question 195 of 291

Question Difficulty: **Hard**

Mr. X is 60 years old is complaining of recurrent chest discomfort related to physical stress. He had a past history of inferior wall MI 8 month ago and was managed uneventfully wit bare-metal stenting PCI, diabetes for 10 years and hypertension for 12 years.

Examinations shows he is calm, pain free, blood pressure of 125/85 mmhg, regular pulse of 75/min and no any irregular heart and chest sounds. Investigations show:

Chest X-ray	Normal
ECG	normal
Serum troponin	0. 01 ng/mL

Exercise ECG was arranged and he suffers the same chest pain and ECG shows ST depression on II, III and aVF leads after 10 minutes on Bruce protocol treadmill testing.

What is preferred management option?

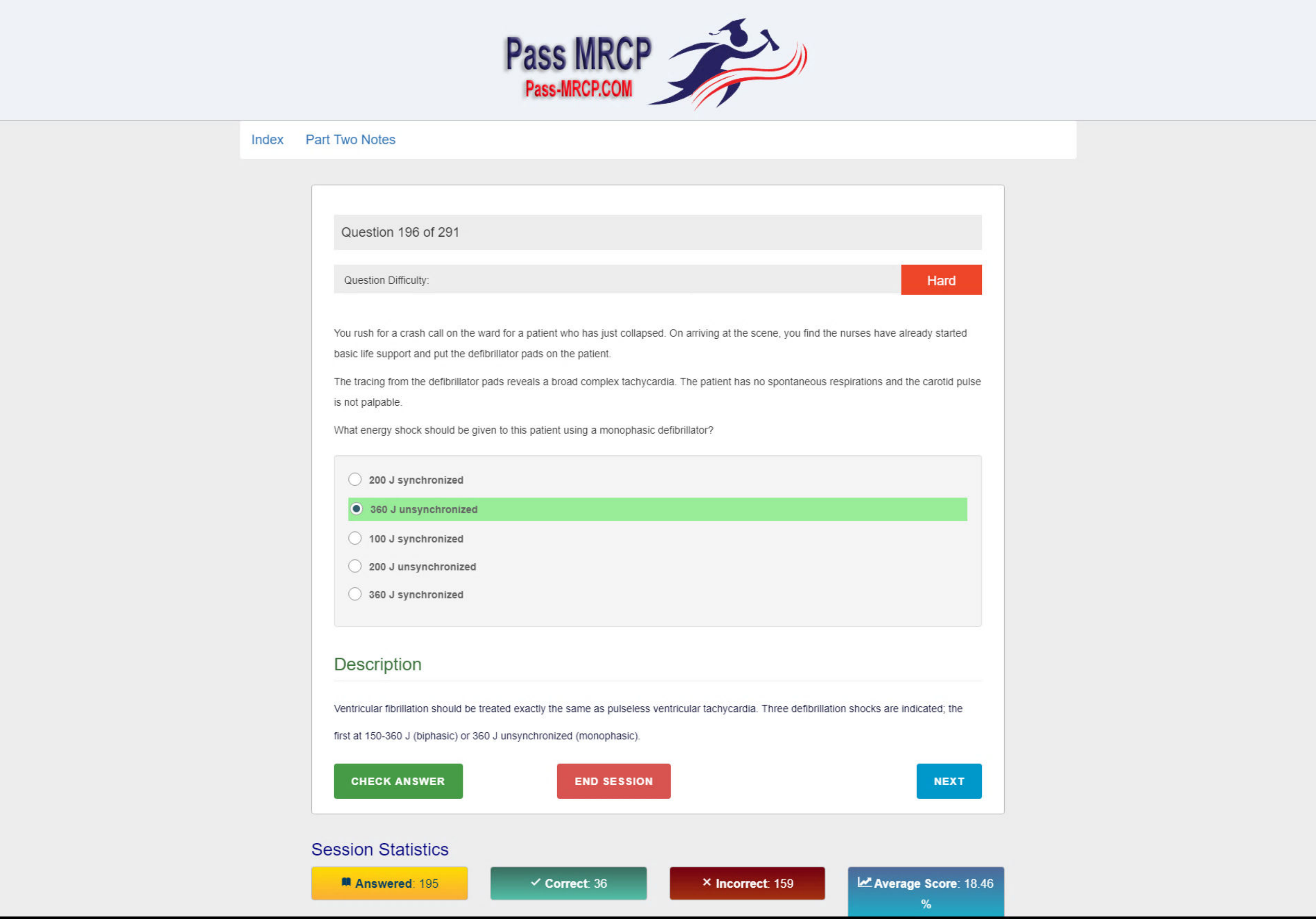
- ○ **Refer for coronary angiography**
- ○ **Thrombolysis and repeat exercise ECG**
- ● **Replace with drug eluting stent in association with clopidogrel and aspirin continued for a 1 year**
- ○ **Clopidogrel and aspirin continued for a 1 year**
- ○ **Add a B-Blocker**

Description

This patient had recurrent anginal symptoms on a previous stented right coronary artery proved by his exercise ECG findings which indicates a stenosis in the stented artery.

Stent restenosis is due to excessive tissue proliferation around stent. It occurs in around 5-20% of patients, most commonly in the first 3-6 months and more common in bare-metal stents than drug eluting stents. It presents with the recurrence of angina symptoms.

Drug eluting stent in association with clopidogrel and aspirin continued for at least 1 year has been shown to reduce the relative risk of re-stenosis.



Question 196 of 291

Question Difficulty: Hard

You rush for a crash call on the ward for a patient who has just collapsed. On arriving at the scene, you find the nurses have already started basic life support and put the defibrillator pads on the patient.

The tracing from the defibrillator pads reveals a broad complex tachycardia. The patient has no spontaneous respirations and the carotid pulse is not palpable.

What energy shock should be given to this patient using a monophasic defibrillator?

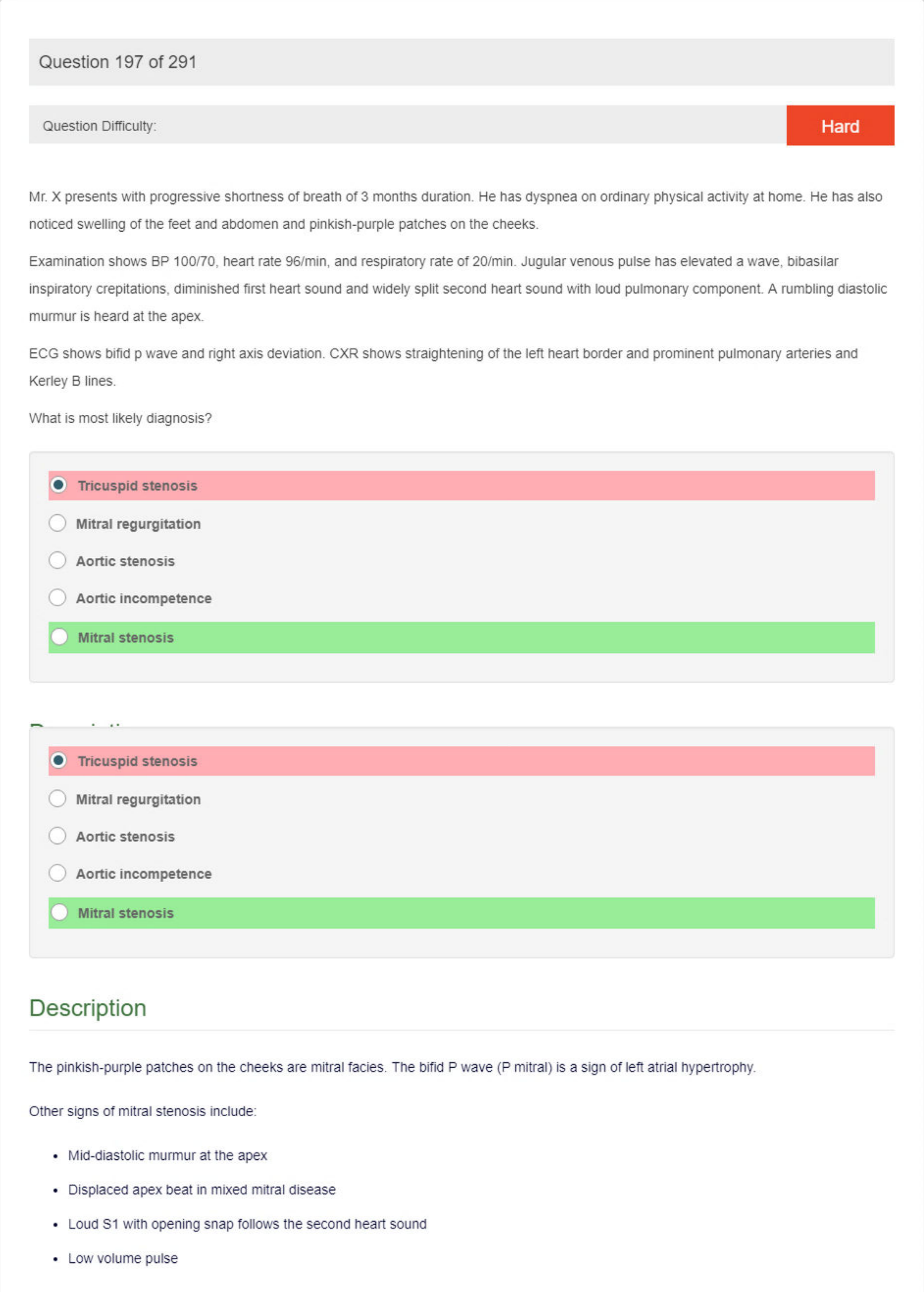
- ○ **200 J synchronized**
- ● **360 J unsynchronized**
- ○ **100 J synchronized**
- ○ **200 J unsynchronized**
- ○ **360 J synchronized**

Description

Ventricular fibrillation should be treated exactly the same as pulseless ventricular tachycardia. Three defibrillation shocks are indicated; the first at 150-360 J (biphasic) or 360 J unsynchronized (monophasic).

Session Statistics

Answered: 195
✓ **Correct**: 36
× **Incorrect**: 159
Average Score: 18.46 %



Question 197 of 291

Question Difficulty: Hard

Mr. X presents with progressive shortness of breath of 3 months duration. He has dyspnea on ordinary physical activity at home. He has also noticed swelling of the feet and abdomen and pinkish-purple patches on the cheeks.

Examination shows BP 100/70, heart rate 96/min, and respiratory rate of 20/min. Jugular venous pulse has elevated a wave, bibasilar inspiratory crepitations, diminished first heart sound and widely split second heart sound with loud pulmonary component. A rumbling diastolic murmur is heard at the apex.

ECG shows bifid p wave and right axis deviation. CXR shows straightening of the left heart border and prominent pulmonary arteries and Kerley B lines.

What is most likely diagnosis?

- ● **Tricuspid stenosis**
- ○ **Mitral regurgitation**
- ○ **Aortic stenosis**
- ○ **Aortic incompetence**
- ○ **Mitral stenosis**

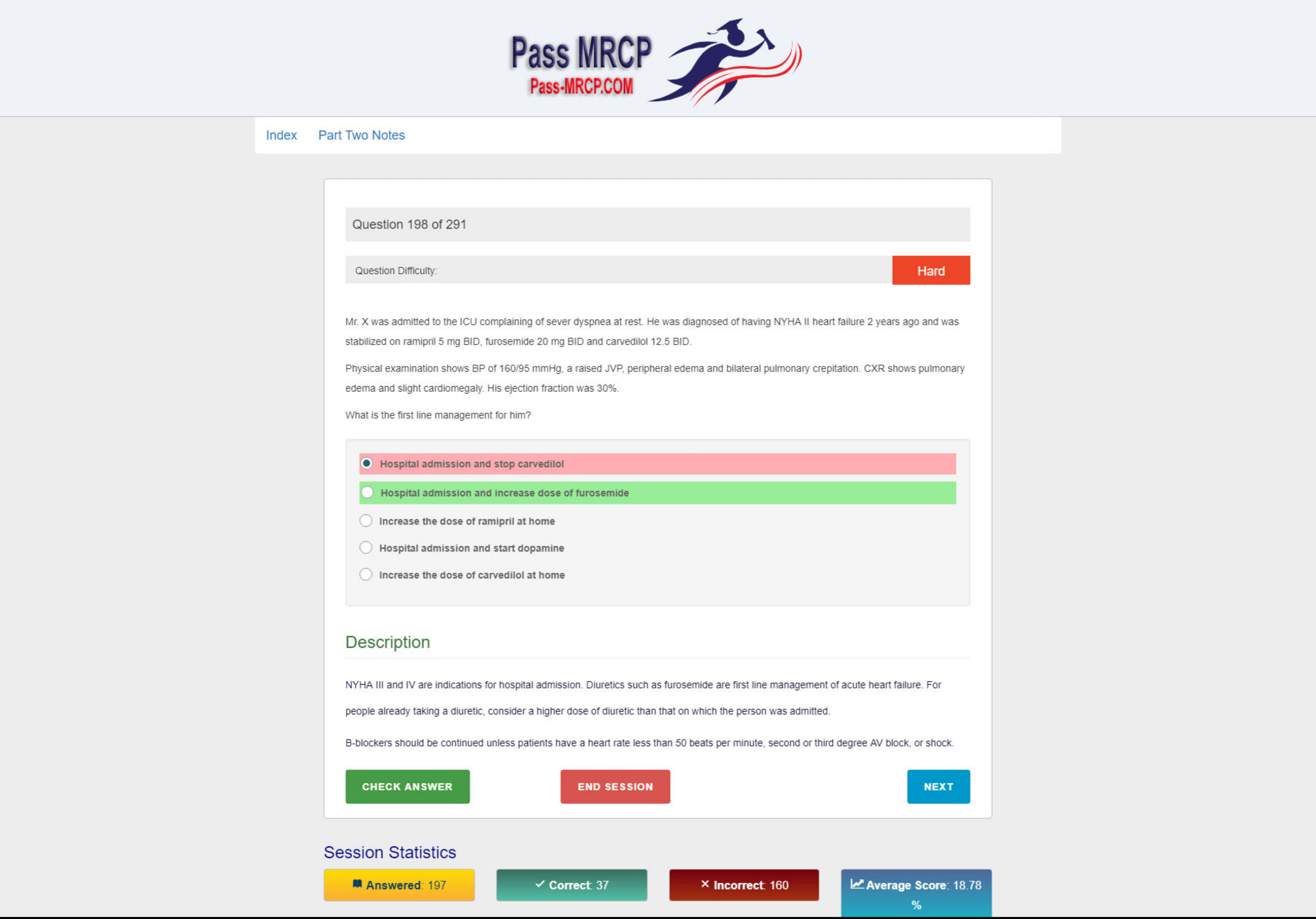
- ● **Tricuspid stenosis**
- ○ **Mitral regurgitation**
- ○ **Aortic stenosis**
- ○ **Aortic incompetence**
- ○ **Mitral stenosis**

Description

The pinkish-purple patches on the cheeks are mitral facies. The bifid P wave (P mitral) is a sign of left atrial hypertrophy.

Other signs of mitral stenosis include:

- Mid-diastolic murmur at the apex
- Displaced apex beat in mixed mitral disease
- Loud S1 with opening snap follows the second heart sound
- Low volume pulse



Question 198 of 291

Question Difficulty: Hard

Mr. X was admitted to the ICU complaining of sever dyspnea at rest. He was diagnosed of having NYHA II heart failure 2 years ago and was stabilized on ramipril 5 mg BID, furosemide 20 mg BID and carvedilol 12.5 BID.

Physical examination shows BP of 160/95 mmHg, a raised JVP, peripheral edema and bilateral pulmonary crepitation. CXR shows pulmonary edema and slight cardiomegaly. His ejection fraction was 30%.

What is the first line management for him?

- ● **Hospital admission and stop carvedilol**
- ○ **Hospital admission and increase dose of furosemide**
- ○ **Increase the dose of ramipril at home**
- ○ **Hospital admission and start dopamine**
- ○ **Increase the dose of carvedilol at home**

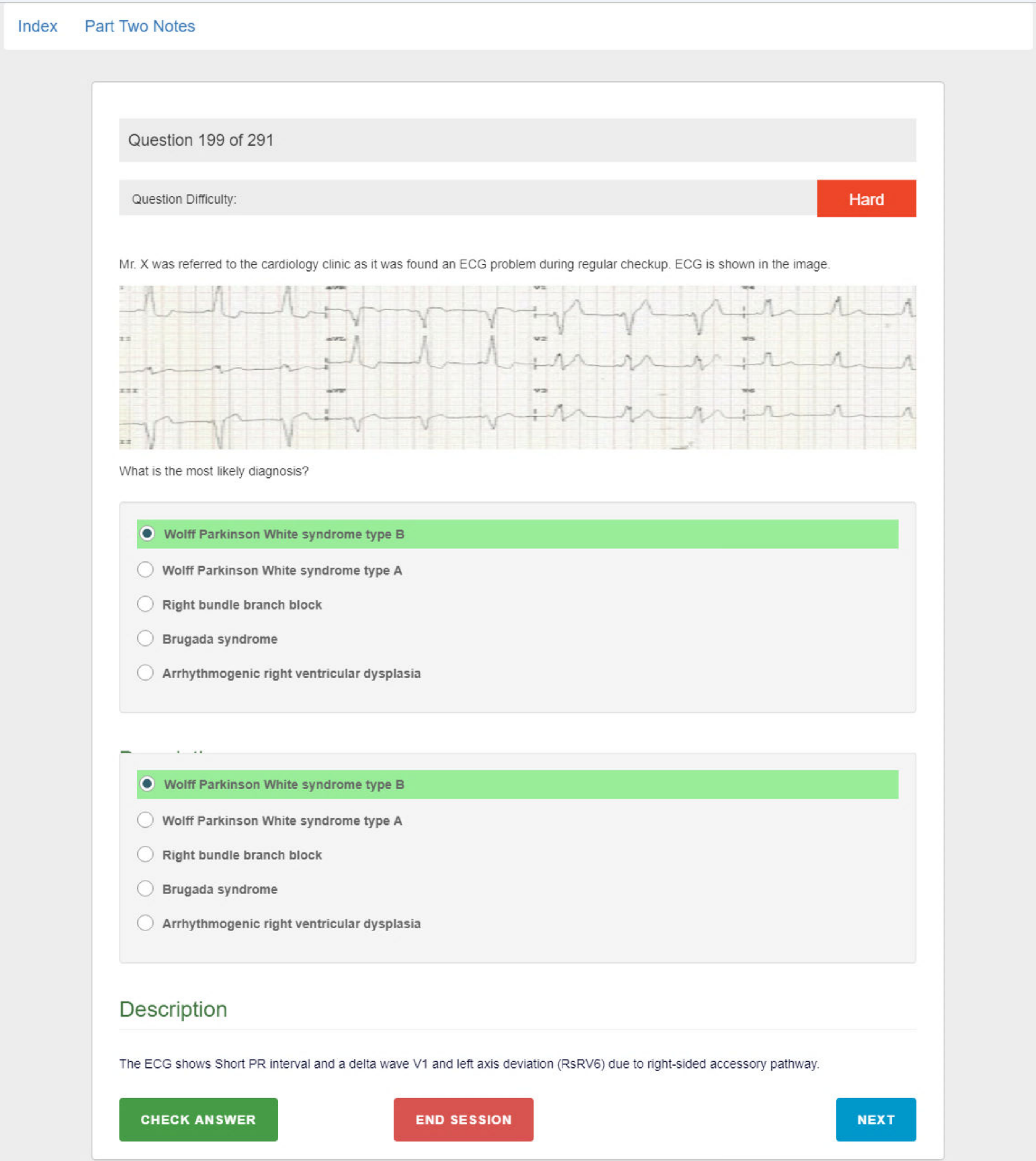
Description

NYHA III and IV are indications for hospital admission. Diuretics such as furosemide are first line management of acute heart failure. For people already taking a diuretic, consider a higher dose of diuretic than that on which the person was admitted.

B-blockers should be continued unless patients have a heart rate less than 50 beats per minute, second or third degree AV block, or shock.

Session Statistics

Answered: 197
✓ **Correct**: 37
✕ **Incorrect**: 160
Average Score: 18.78 %



Question 199 of 291

Question Difficulty: **Hard**

Mr. X was referred to the cardiology clinic as it was found an ECG problem during regular checkup. ECG is shown in the image.

What is the most likely diagnosis?

- ● **Wolff Parkinson White syndrome type B**
- ○ **Wolff Parkinson White syndrome type A**
- ○ **Right bundle branch block**
- ○ **Brugada syndrome**
- ○ **Arrhythmogenic right ventricular dysplasia**

- ● **Wolff Parkinson White syndrome type B**
- ○ **Wolff Parkinson White syndrome type A**
- ○ **Right bundle branch block**
- ○ **Brugada syndrome**
- ○ **Arrhythmogenic right ventricular dysplasia**

Description

The ECG shows Short PR interval and a delta wave V1 and left axis deviation (RsRV6) due to right-sided accessory pathway.

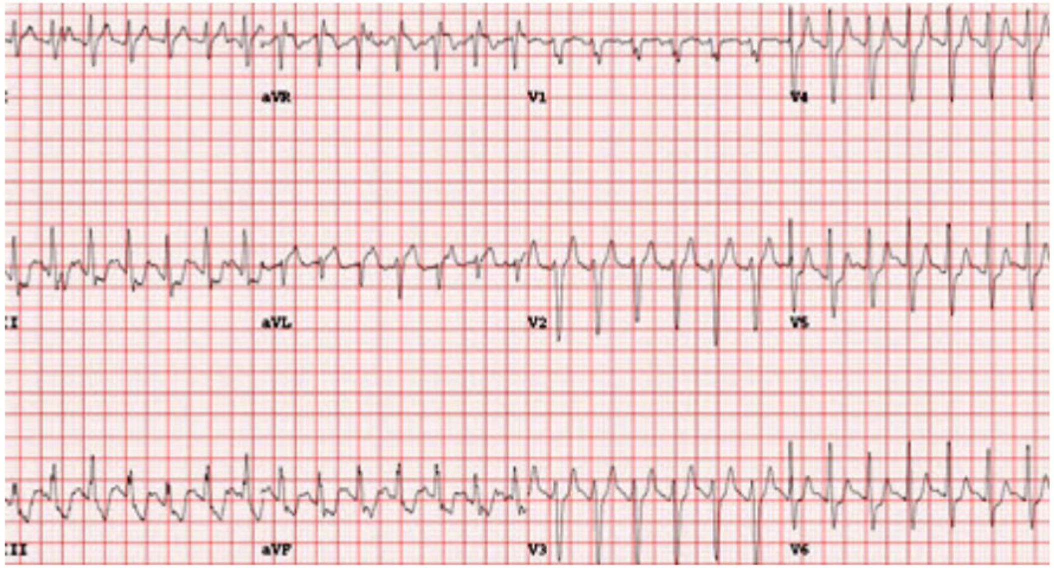
Question 200 of 291

Question Difficulty: **Hard**

Mr. X is 60 years old is complaining of sudden onset chest discomfort which lasts about 10 minutes and faded away when he set down for rest.

History shows the pain is radiated to the neck area. He had a past history of diabetes 10 years previously and hypertension for 12 years and he is well controlled on metformin 500 mg tds and enalapril 10 mg once daily.

Examinations shows he is calm, pain free, blood pressure of 1250/85 mmhg, regular pulse of 75/min and no any irregular heart and chest sounds. ECG is shown in the picture and serum troponin is 0.001 ng/ml.

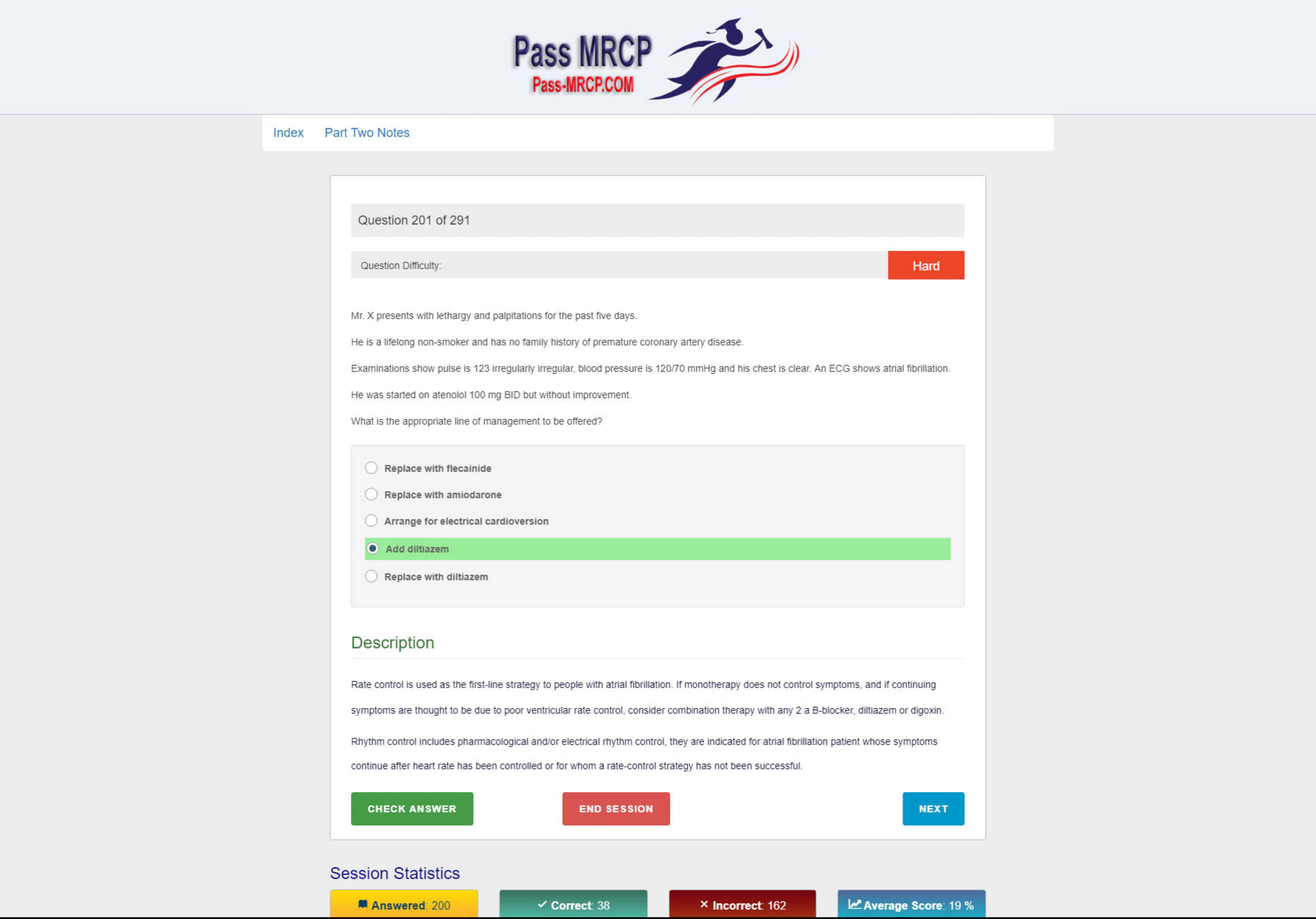


What is the most likely diagnosis?

- ● Nonspecific chest pain
- ○ Pericarditis
- ○ Unstable angina
- ○ Stable angina
- ○ NSTEMI

Description

His chest pain, his ECG which shows ST depression in II, III and aVF and normal troponin all points to stable angina. Unstable angina and NSTEMI have a prolonged pain and elevated troponin.



Question 201 of 291

Question Difficulty: Hard

Mr. X presents with lethargy and palpitations for the past five days.

He is a lifelong non-smoker and has no family history of premature coronary artery disease.

Examinations show pulse is 123 irregularly irregular, blood pressure is 120/70 mmHg and his chest is clear. An ECG shows atrial fibrillation.

He was started on atenolol 100 mg BID but without improvement.

What is the appropriate line of management to be offered?

- ○ **Replace with flecainide**
- ○ **Replace with amiodarone**
- ○ **Arrange for electrical cardioversion**
- ● **Add diltiazem**
- ○ **Replace with diltiazem**

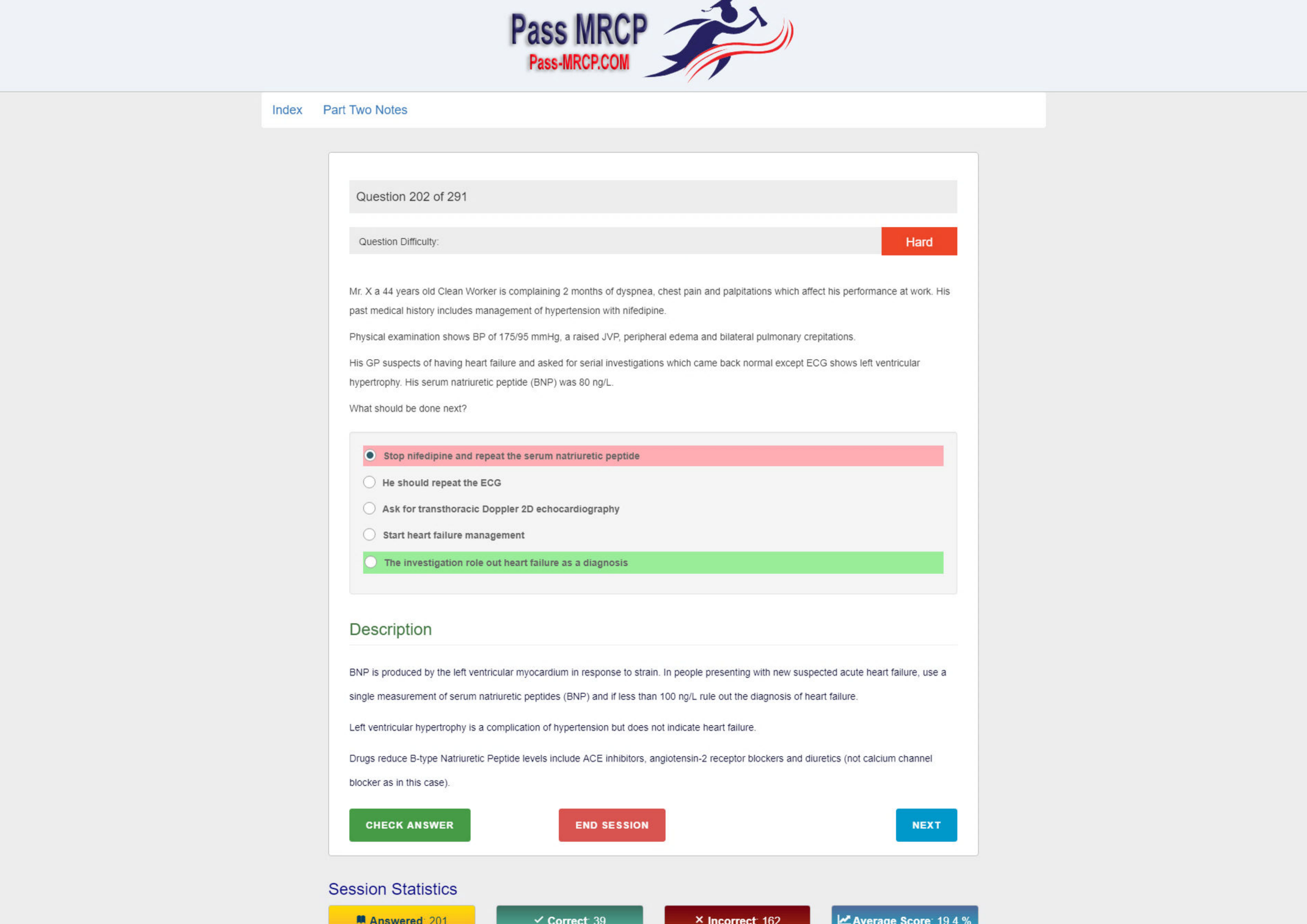
Description

Rate control is used as the first-line strategy to people with atrial fibrillation. If monotherapy does not control symptoms, and if continuing symptoms are thought to be due to poor ventricular rate control, consider combination therapy with any 2 a B-blocker, diltiazem or digoxin.

Rhythm control includes pharmacological and/or electrical rhythm control, they are indicated for atrial fibrillation patient whose symptoms continue after heart rate has been controlled or for whom a rate-control strategy has not been successful.

Session Statistics

Answered: 200 | **Correct**: 38 | **Incorrect**: 162 | **Average Score**: 19 %



Question 202 of 291

Question Difficulty: Hard

Mr. X a 44 years old Clean Worker is complaining 2 months of dyspnea, chest pain and palpitations which affect his performance at work. His past medical history includes management of hypertension with nifedipine.

Physical examination shows BP of 175/95 mmHg, a raised JVP, peripheral edema and bilateral pulmonary crepitations.

His GP suspects of having heart failure and asked for serial investigations which came back normal except ECG shows left ventricular hypertrophy. His serum natriuretic peptide (BNP) was 80 ng/L.

What should be done next?

- ● **Stop nifedipine and repeat the serum natriuretic peptide**
- ○ **He should repeat the ECG**
- ○ **Ask for transthoracic Doppler 2D echocardiography**
- ○ **Start heart failure management**
- ○ **The investigation role out heart failure as a diagnosis**

Description

BNP is produced by the left ventricular myocardium in response to strain. In people presenting with new suspected acute heart failure, use a single measurement of serum natriuretic peptides (BNP) and if less than 100 ng/L rule out the diagnosis of heart failure.

Left ventricular hypertrophy is a complication of hypertension but does not indicate heart failure.

Drugs reduce B-type Natriuretic Peptide levels include ACE inhibitors, angiotensin-2 receptor blockers and diuretics (not calcium channel blocker as in this case).

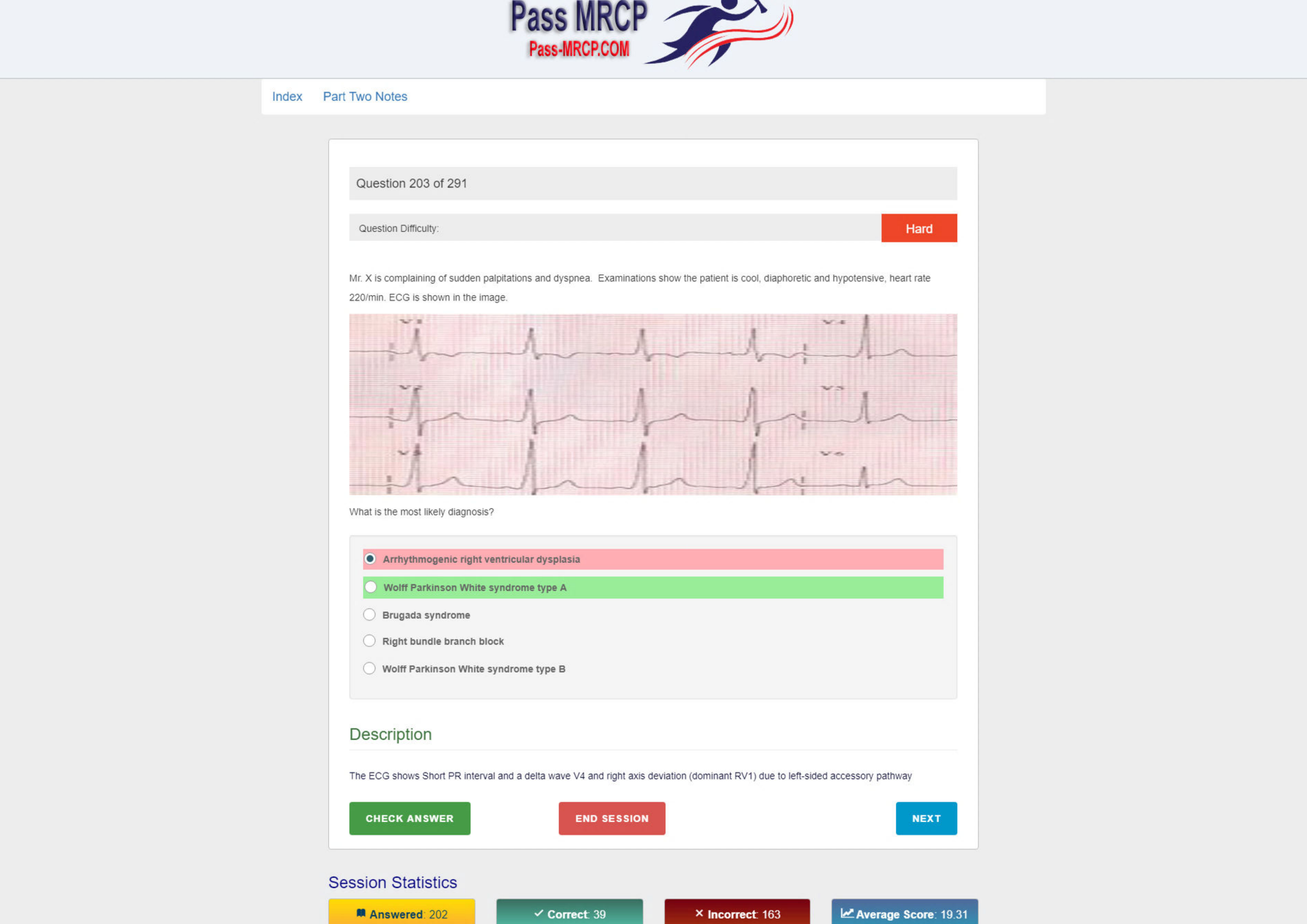
Session Statistics

Answered: 201

✓ Correct: 39

× Incorrect: 162

Average Score: 19.4 %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Index
Part Two Notes

Question 203 of 291

Question Difficulty: Hard

Mr. X is complaining of sudden palpitations and dyspnea. Examinations show the patient is cool, diaphoretic and hypotensive, heart rate 220/min. ECG is shown in the image.

What is the most likely diagnosis?

- ● Arrhythmogenic right ventricular dysplasia
- ○ Wolff Parkinson White syndrome type A
- ○ Brugada syndrome
- ○ Right bundle branch block
- ○ Wolff Parkinson White syndrome type B

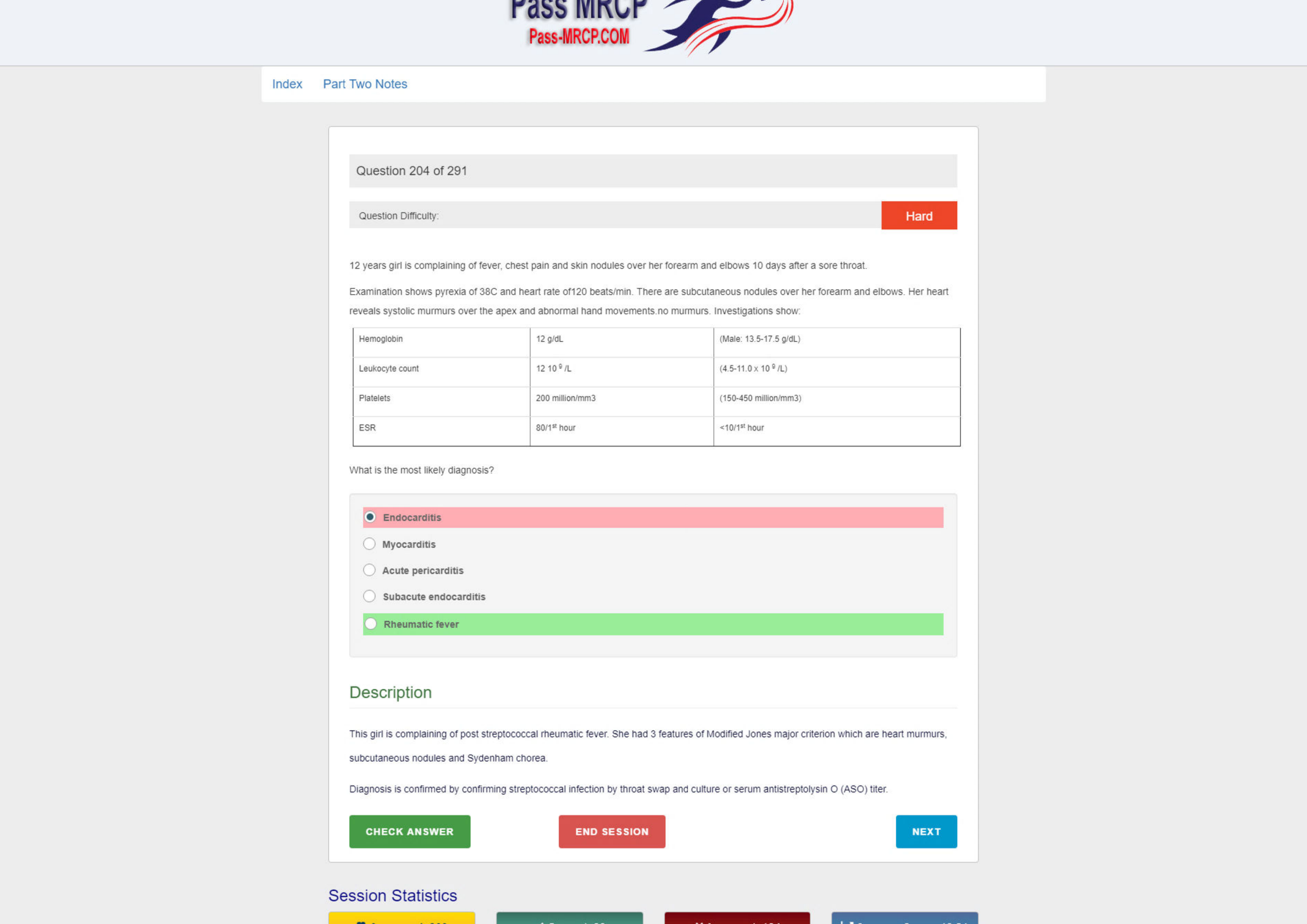
Description

The ECG shows Short PR interval and a delta wave V4 and right axis deviation (dominant RV1) due to left-sided accessory pathway

CHECK ANSWER
END SESSION
NEXT

Session Statistics

Answered: 202
Correct: 39
Incorrect: 163
Average Score: 19.31



Question 204 of 291

Question Difficulty: Hard

12 years girl is complaining of fever, chest pain and skin nodules over her forearm and elbows 10 days after a sore throat.

Examination shows pyrexia of 38C and heart rate of120 beats/min. There are subcutaneous nodules over her forearm and elbows. Her heart reveals systolic murmurs over the apex and abnormal hand movements.no murmurs. Investigations show:

Hemoglobin	12 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	12 10^9 /L	(4.5-11.0 x 10^9 /L)
Platelets	200 million/mm3	(150-450 million/mm3)
ESR	80/1st hour	<10/1st hour

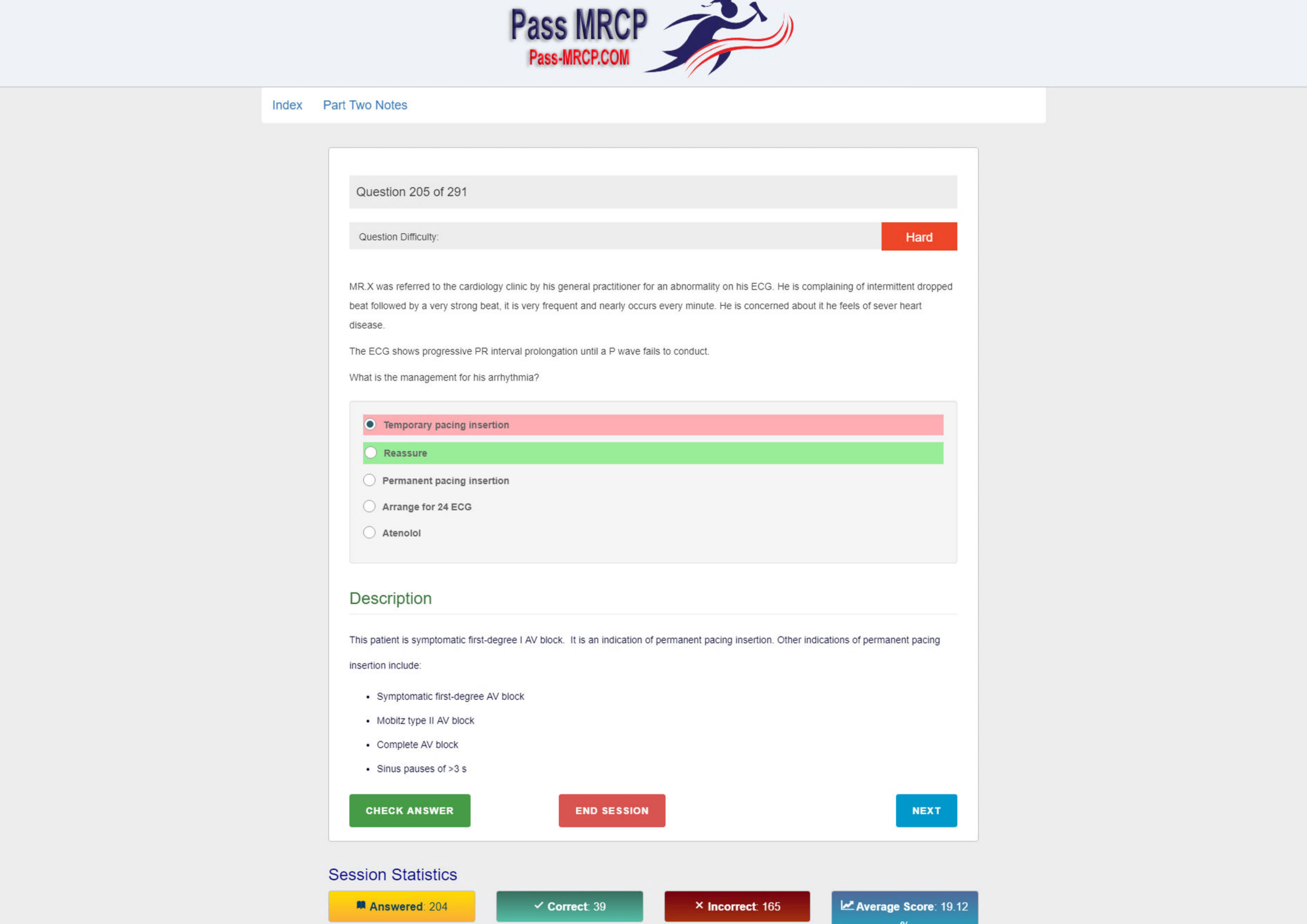
What is the most likely diagnosis?

- ● **Endocarditis**
- ○ **Myocarditis**
- ○ **Acute pericarditis**
- ○ **Subacute endocarditis**
- ○ **Rheumatic fever**

Description

This girl is complaining of post streptococcal rheumatic fever. She had 3 features of Modified Jones major criterion which are heart murmurs, subcutaneous nodules and Sydenham chorea.

Diagnosis is confirmed by confirming streptococcal infection by throat swap and culture or serum antistreptolysin O (ASO) titer.



Question 205 of 291

Question Difficulty: **Hard**

MR.X was referred to the cardiology clinic by his general practitioner for an abnormality on his ECG. He is complaining of intermittent dropped beat followed by a very strong beat, it is very frequent and nearly occurs every minute. He is concerned about it he feels of sever heart disease.

The ECG shows progressive PR interval prolongation until a P wave fails to conduct.

What is the management for his arrhythmia?

● **Temporary pacing insertion**
○ **Reassure**
○ **Permanent pacing insertion**
○ **Arrange for 24 ECG**
○ **Atenolol**

Description

This patient is symptomatic first-degree I AV block. It is an indication of permanent pacing insertion. Other indications of permanent pacing insertion include:

- Symptomatic first-degree AV block
- Mobitz type II AV block
- Complete AV block
- Sinus pauses of >3 s

Session Statistics

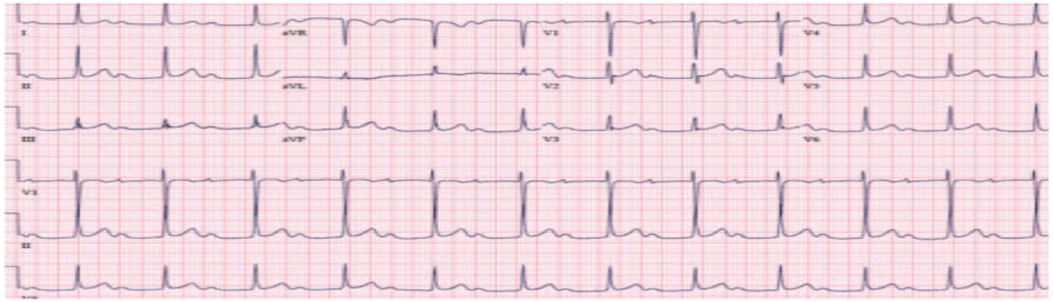
Answered: 204
✓ **Correct**: 39
✕ **Incorrect**: 165
Average Score: 19.12

Index Part Two Notes

Question 206 of 291

Question Difficulty: **Hard**

On regular review of Mr. X in the cardiac clinic; it was found that his ECG shows a problem that has not been in the previous review last year. He is asymptomatic and never complained of any palpitations.



What is the most likely diagnosis?

○ **First-degree AV block**
○ **Mobitz type II AV block**
● **Complete heart block**
○ **Mobitz type I AV block**
○ **Sinus pause**

Description

Atrioventricular Block is categorized in to:

- First-degree AV (PR interval > 0.21 second with all atrial impulses conducted)
- Second-degree block is sub-classified in to:
    - Mobitz type I (Wenckebach) AV, the PR interval progressively lengthens, with the RR interval shortening, before the blocked beat.
    - Mobitz type II AV block, there are intermittently non conducted atrial beats not preceded by lengthening AV conduction.
- Complete (third-degree) heart block: Transmission of atrial impulses through the AV node is completely blocked The QRS is wide and the ventricular rate is slower, usually < 50 beats/min

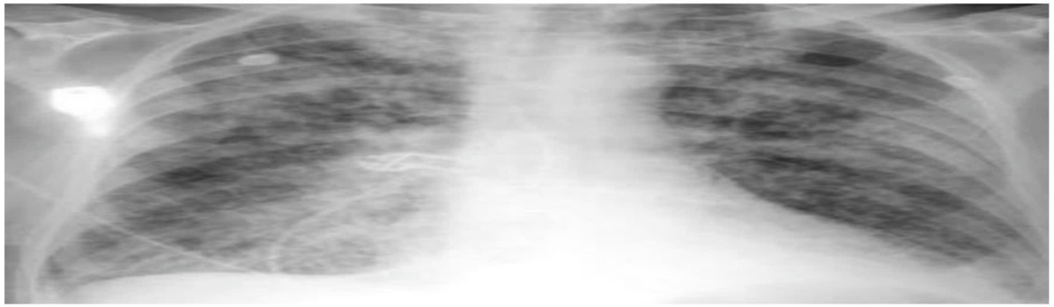
CHECK ANSWER END SESSION NEXT

Question 207 of 291

Question Difficulty: **Hard**

Mr. X with a known history of congestive cardiac failure presented to ICU with dyspnea, orthopnea and paroxysmal nocturnal dyspnea.

Examination shows respiratory rate was 40/min and a blood pressure of 50/30 mmHg. He has coarse crackles throughout both lung fields and a gallop rhythm on auscultation. CXR is shown in the image. Echo shows PCWP > 25 mm Hg.



Initial treatment was started with oxygen, furosemide and morphine.

What is the most appropriate next step in management?

○ **IV dobutamine**

○ **IV Noradrenaline**

○ **IV dopamine**

● **Sublingual nitroglycerine**

○ **Intracardiac noradrenaline**

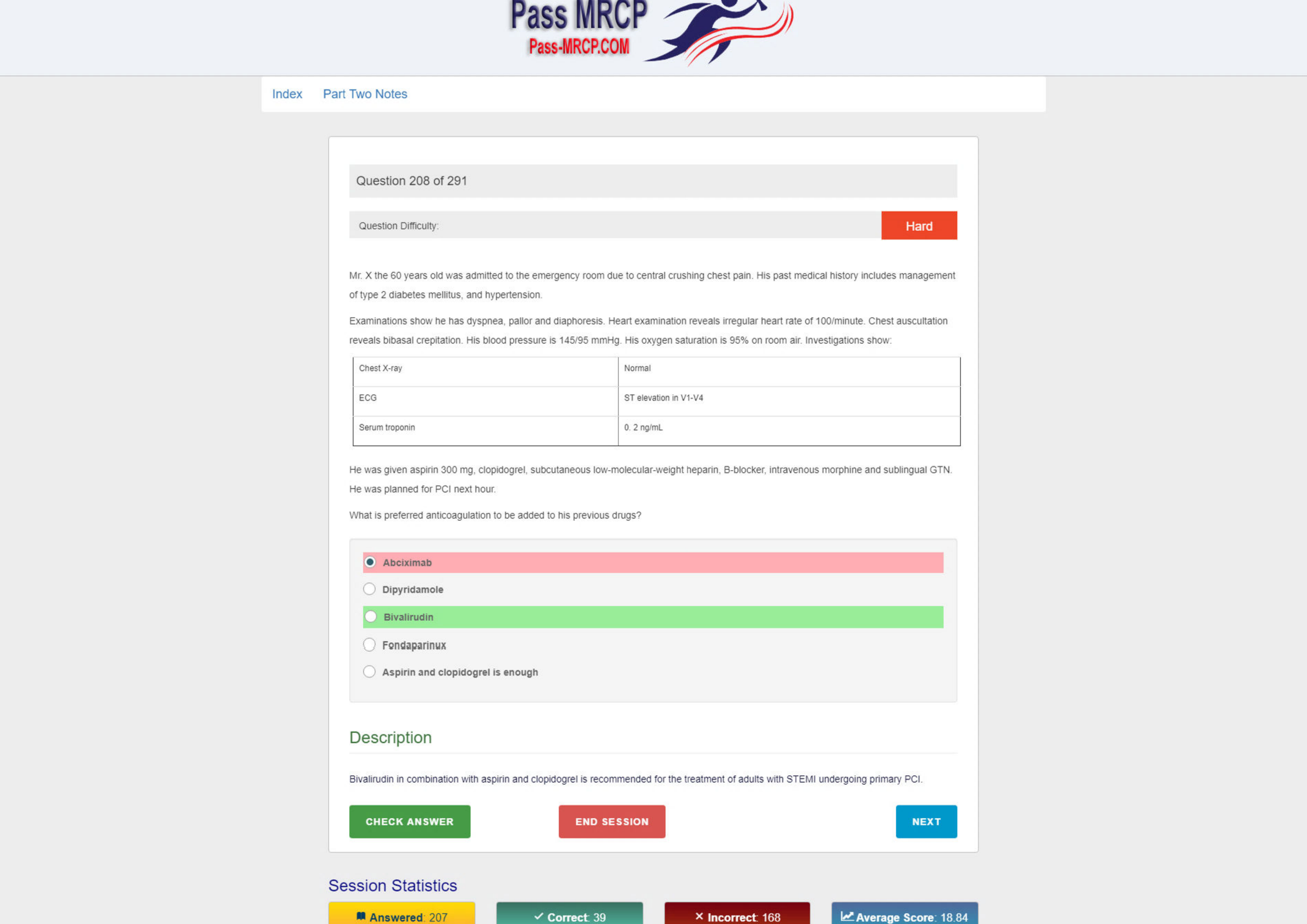
Description

This patient is complaining pulmonary edema.

CXR shows signs of pulmonary vascular redistribution (upper lobe diversion and Kerley B lines) and the butterfly pattern of distribution of alveolar edema

Initial management is by high-flow oxygen, furosemide, morphine, and sublingual nitroglycerin. The second step is dictated by the systolic blood pressure:

- If the SBP is >100 mmHg, start IV nitroglycerine
- If a SBP of 80-100 mmHg, with no signs or symptoms of shock start IV dobutamine
- If the SBP is 60-80 mmHg with signs or symptoms of shock, start IV dopamine
- If the SBP is less than 60 mmHg, start IV noradrenaline


Pass MRCP
Pass-MRCP.COM
Index
Part Two Notes

Question 208 of 291

Question Difficulty: **Hard**

Mr. X the 60 years old was admitted to the emergency room due to central crushing chest pain. His past medical history includes management of type 2 diabetes mellitus, and hypertension.

Examinations show he has dyspnea, pallor and diaphoresis. Heart examination reveals irregular heart rate of 100/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 145/95 mmHg. His oxygen saturation is 95% on room air. Investigations show:

Chest X-ray	Normal
ECG	ST elevation in V1-V4
Serum troponin	0. 2 ng/mL

He was given aspirin 300 mg, clopidogrel, subcutaneous low-molecular-weight heparin, B-blocker, intravenous morphine and sublingual GTN. He was planned for PCI next hour.

What is preferred anticoagulation to be added to his previous drugs?

- ● **Abciximab**
- ○ **Dipyridamole**
- ○ **Bivalirudin**
- ○ **Fondaparinux**
- ○ **Aspirin and clopidogrel is enough**

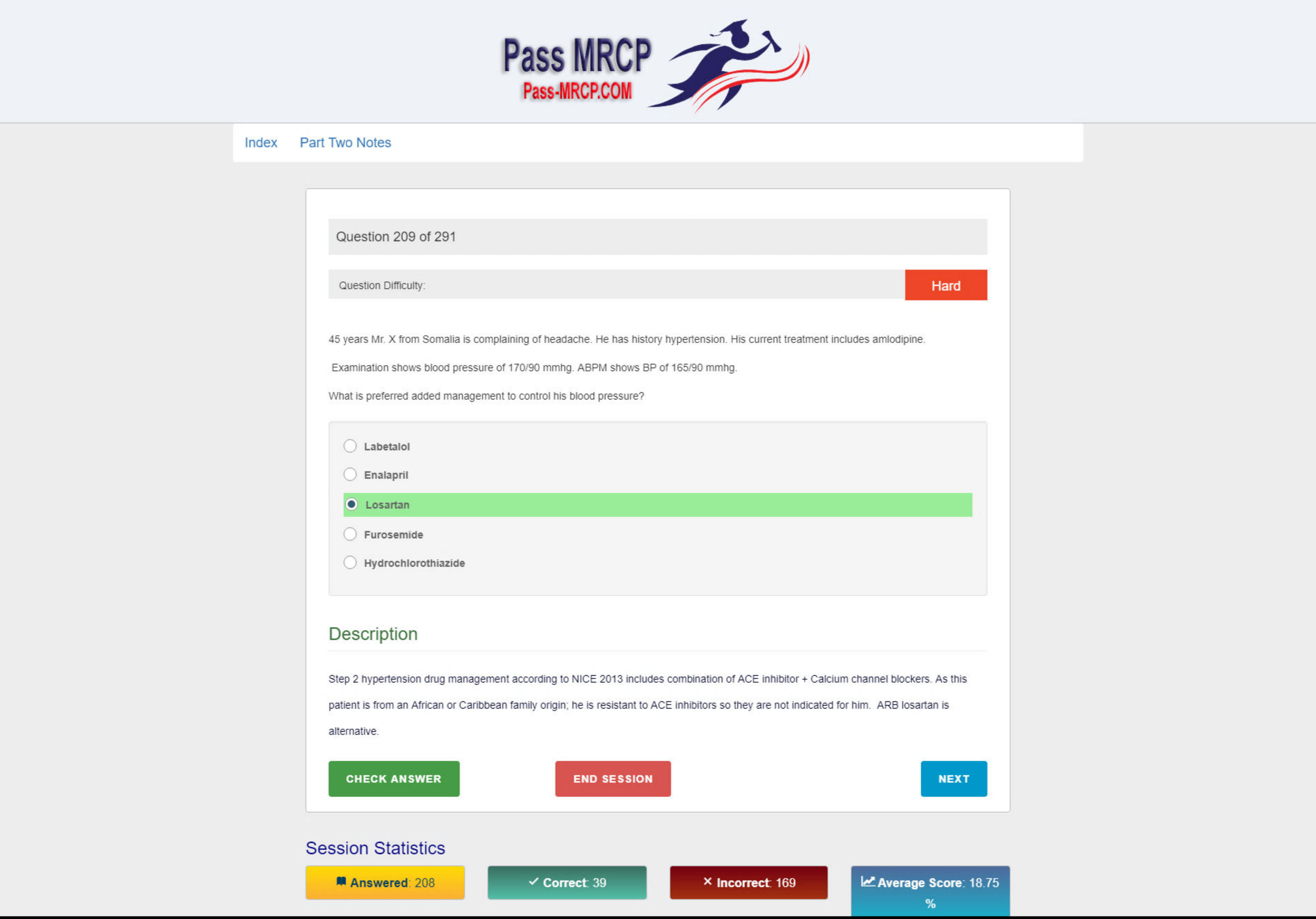
Description

Bivalirudin in combination with aspirin and clopidogrel is recommended for the treatment of adults with STEMI undergoing primary PCI.

CHECK ANSWER
END SESSION
NEXT

Session Statistics

Answered: 207
✓ Correct: 39
✕ Incorrect: 168
Average Score: 18.84



Question 209 of 291

Question Difficulty: Hard

45 years Mr. X from Somalia is complaining of headache. He has history hypertension. His current treatment includes amlodipine.

Examination shows blood pressure of 170/90 mmhg. ABPM shows BP of 165/90 mmhg.

What is preferred added management to control his blood pressure?

- ○ **Labetalol**
- ○ **Enalapril**
- ● **Losartan**
- ○ **Furosemide**
- ○ **Hydrochlorothiazide**

Description

Step 2 hypertension drug management according to NICE 2013 includes combination of ACE inhibitor + Calcium channel blockers. As this patient is from an African or Caribbean family origin; he is resistant to ACE inhibitors so they are not indicated for him. ARB losartan is alternative.

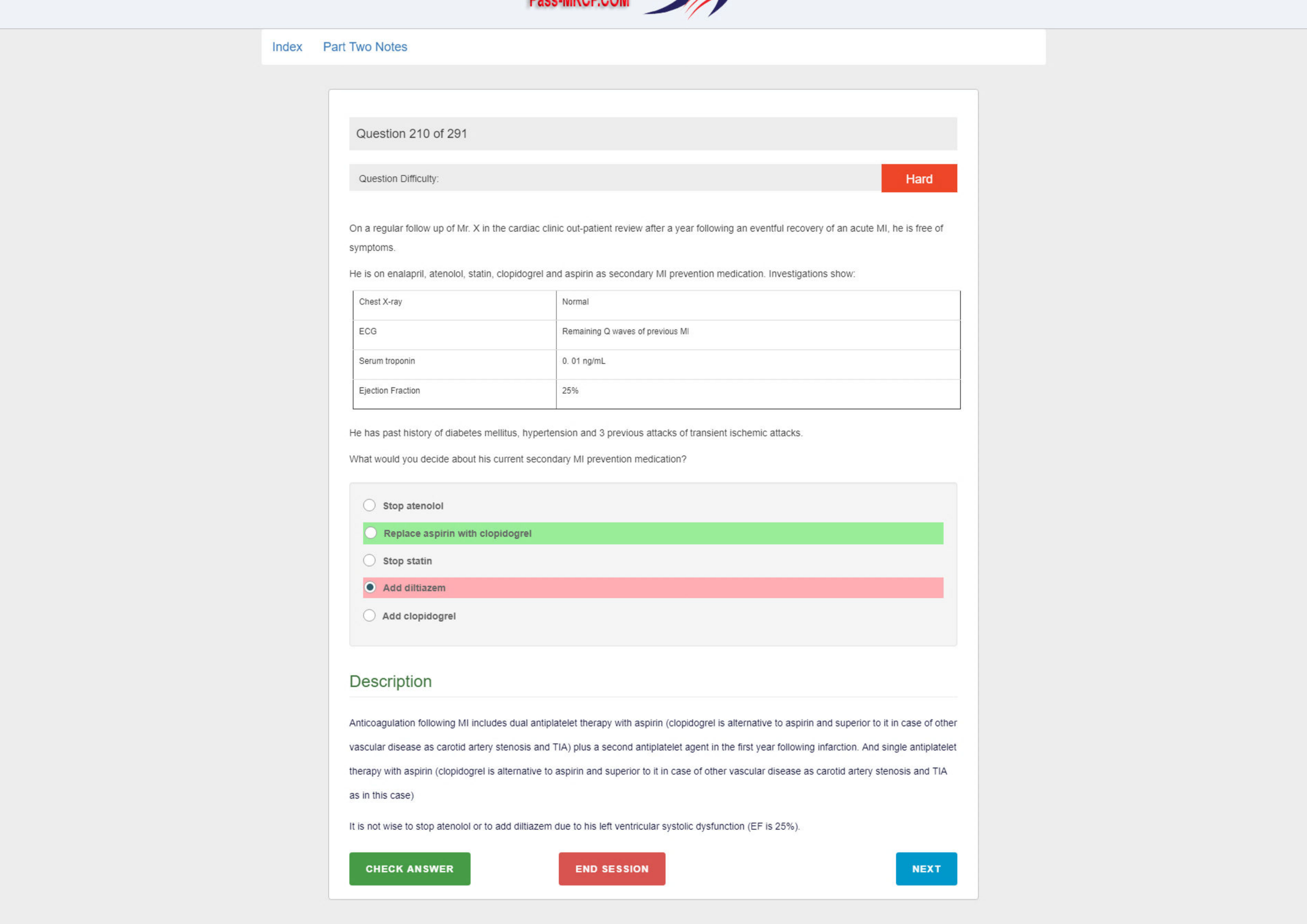
Session Statistics

Answered: 208

✓ **Correct**: 39

× **Incorrect**: 169

Average Score: 18.75 %



Question 210 of 291

Question Difficulty: **Hard**

On a regular follow up of Mr. X in the cardiac clinic out-patient review after a year following an eventful recovery of an acute MI, he is free of symptoms.

He is on enalapril, atenolol, statin, clopidogrel and aspirin as secondary MI prevention medication. Investigations show:

Chest X-ray	Normal
ECG	Remaining Q waves of previous MI
Serum troponin	0. 01 ng/mL
Ejection Fraction	25%

He has past history of diabetes mellitus, hypertension and 3 previous attacks of transient ischemic attacks.

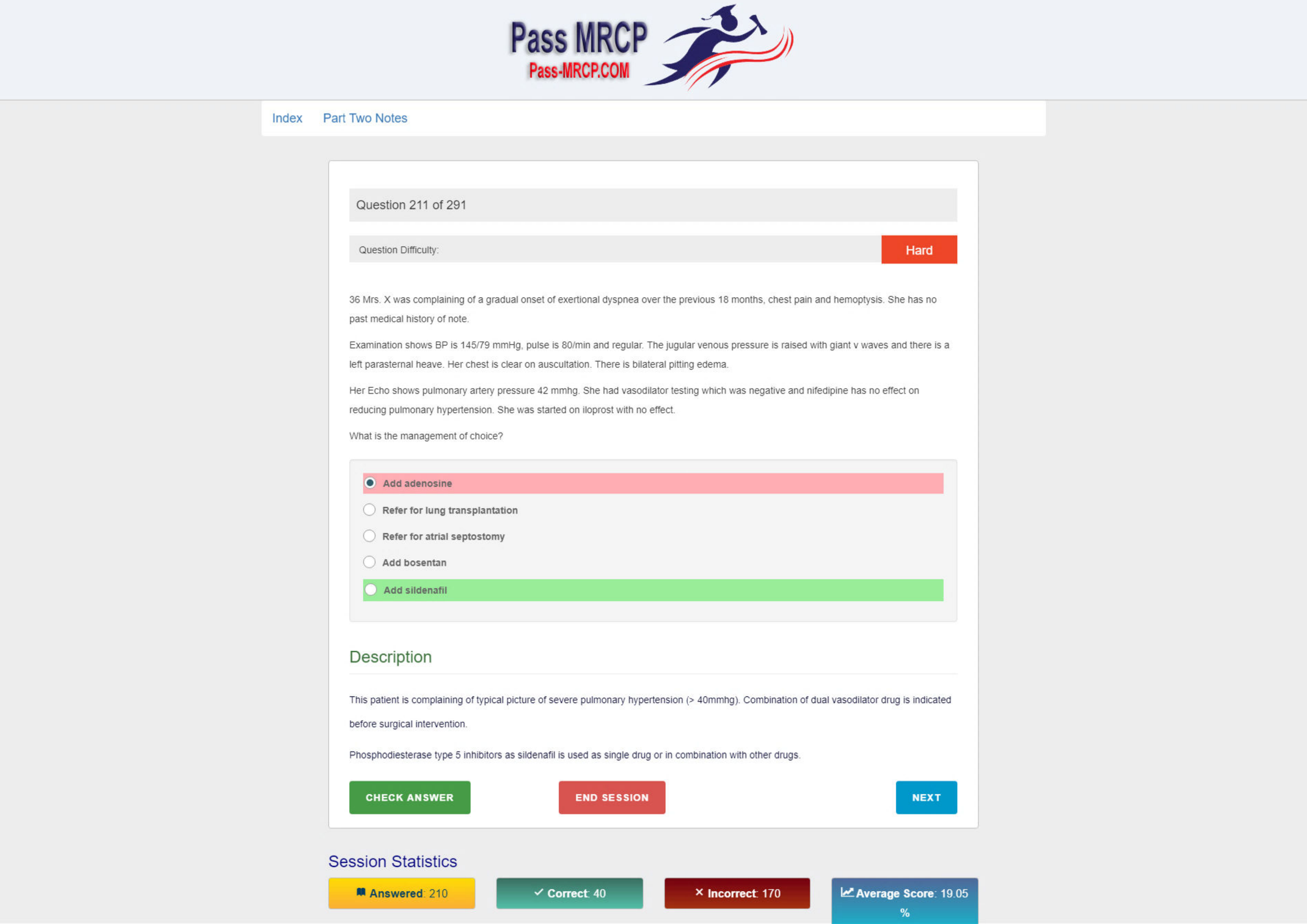
What would you decide about his current secondary MI prevention medication?

- ○ **Stop atenolol**
- ○ **Replace aspirin with clopidogrel**
- ○ **Stop statin**
- ● **Add diltiazem**
- ○ **Add clopidogrel**

Description

Anticoagulation following MI includes dual antiplatelet therapy with aspirin (clopidogrel is alternative to aspirin and superior to it in case of other vascular disease as carotid artery stenosis and TIA) plus a second antiplatelet agent in the first year following infarction. And single antiplatelet therapy with aspirin (clopidogrel is alternative to aspirin and superior to it in case of other vascular disease as carotid artery stenosis and TIA as in this case)

It is not wise to stop atenolol or to add diltiazem due to his left ventricular systolic dysfunction (EF is 25%).



Question 211 of 291

Question Difficulty: Hard

36 Mrs. X was complaining of a gradual onset of exertional dyspnea over the previous 18 months, chest pain and hemoptysis. She has no past medical history of note.

Examination shows BP is 145/79 mmHg, pulse is 80/min and regular. The jugular venous pressure is raised with giant v waves and there is a left parasternal heave. Her chest is clear on auscultation. There is bilateral pitting edema.

Her Echo shows pulmonary artery pressure 42 mmhg. She had vasodilator testing which was negative and nifedipine has no effect on reducing pulmonary hypertension. She was started on iloprost with no effect.

What is the management of choice?

- ● Add adenosine
- ○ Refer for lung transplantation
- ○ Refer for atrial septostomy
- ○ Add bosentan
- ○ Add sildenafil

Description

This patient is complaining of typical picture of severe pulmonary hypertension (> 40mmhg). Combination of dual vasodilator drug is indicated before surgical intervention.

Phosphodiesterase type 5 inhibitors as sildenafil is used as single drug or in combination with other drugs.

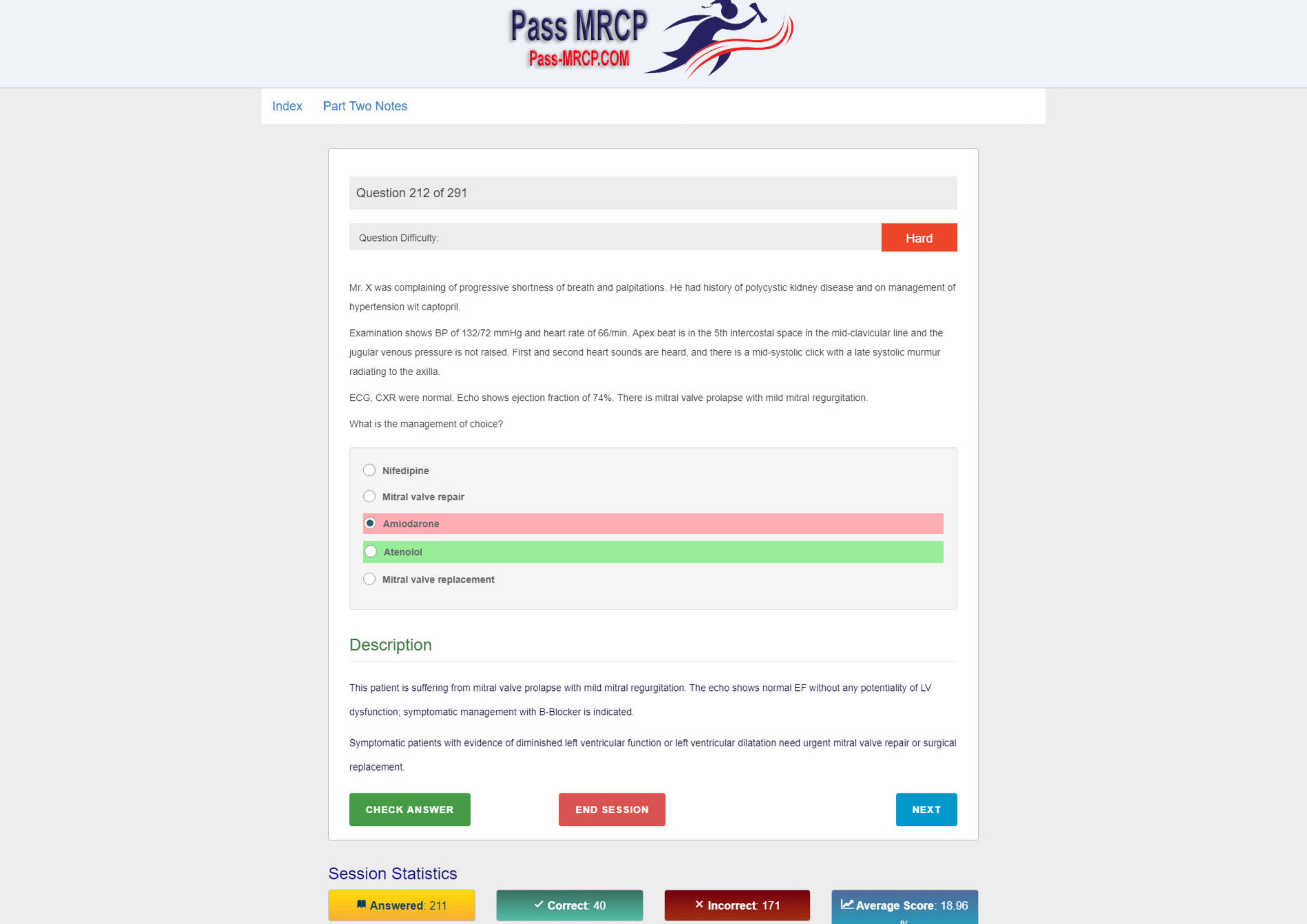
Session Statistics

Answered: 210

✓ Correct: 40

✕ Incorrect: 170

Average Score: 19.05 %



Question 212 of 291

Question Difficulty: **Hard**

Mr. X was complaining of progressive shortness of breath and palpitations. He had history of polycystic kidney disease and on management of hypertension wit captopril.

Examination shows BP of 132/72 mmHg and heart rate of 66/min. Apex beat is in the 5th intercostal space in the mid-clavicular line and the jugular venous pressure is not raised. First and second heart sounds are heard, and there is a mid-systolic click with a late systolic murmur radiating to the axilla.

ECG, CXR were normal. Echo shows ejection fraction of 74%. There is mitral valve prolapse with mild mitral regurgitation.

What is the management of choice?

- ○ **Nifedipine**
- ○ **Mitral valve repair**
- ● **Amiodarone**
- ○ **Atenolol**
- ○ **Mitral valve replacement**

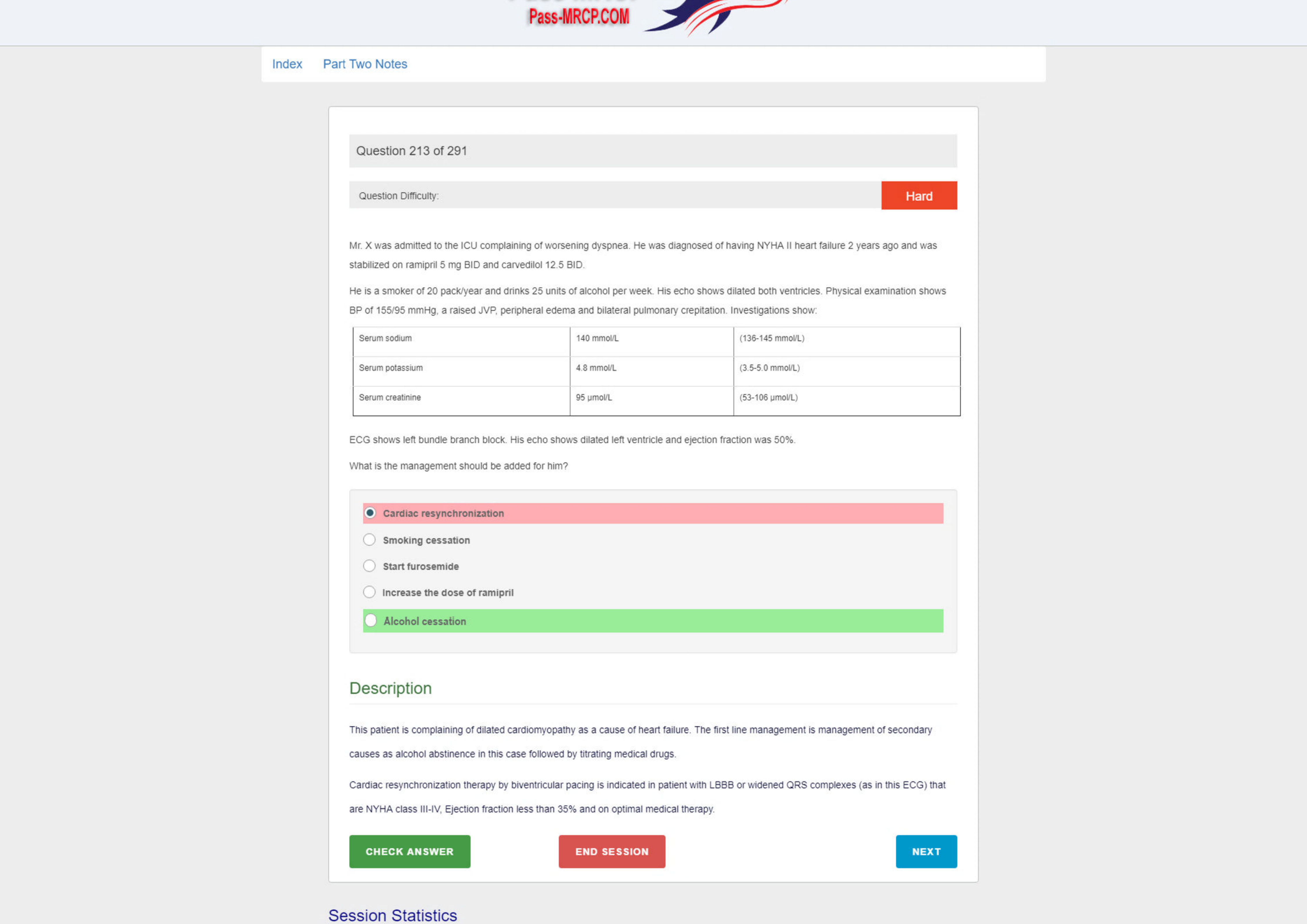
Description

This patient is suffering from mitral valve prolapse with mild mitral regurgitation. The echo shows normal EF without any potentiality of LV dysfunction; symptomatic management with B-Blocker is indicated.

Symptomatic patients with evidence of diminished left ventricular function or left ventricular dilatation need urgent mitral valve repair or surgical replacement.

Session Statistics

Answered: 211
Correct: 40
Incorrect: 171
Average Score: 18.96



Question 213 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the ICU complaining of worsening dyspnea. He was diagnosed of having NYHA II heart failure 2 years ago and was stabilized on ramipril 5 mg BID and carvedilol 12.5 BID.

He is a smoker of 20 pack/year and drinks 25 units of alcohol per week. His echo shows dilated both ventricles. Physical examination shows BP of 155/95 mmHg, a raised JVP, peripheral edema and bilateral pulmonary crepitation. Investigations show:

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	95 µmol/L	(53-106 µmol/L)

ECG shows left bundle branch block. His echo shows dilated left ventricle and ejection fraction was 50%.

What is the management should be added for him?

- ● **Cardiac resynchronization**
- ○ **Smoking cessation**
- ○ **Start furosemide**
- ○ **Increase the dose of ramipril**
- ○ **Alcohol cessation**

Description

This patient is complaining of dilated cardiomyopathy as a cause of heart failure. The first line management is management of secondary causes as alcohol abstinence in this case followed by titrating medical drugs.

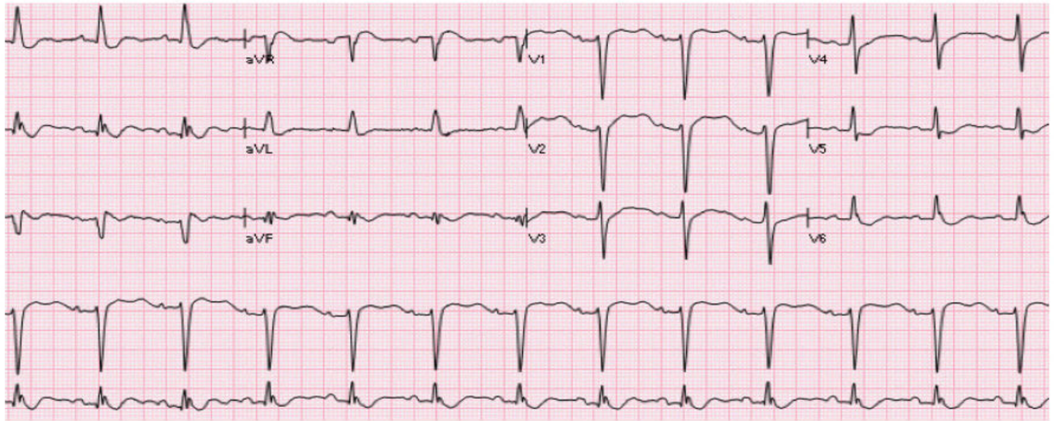
Cardiac resynchronization therapy by biventricular pacing is indicated in patient with LBBB or widened QRS complexes (as in this ECG) that are NYHA class III-IV, Ejection fraction less than 35% and on optimal medical therapy.

Session Statistics

Question 214 of 291

Question Difficulty: **Hard**

Mr. X is complaining of palpitations 3 days after admission due to gastroenteritis with sever vomiting and diarrhea. His ECG is shown in the image.



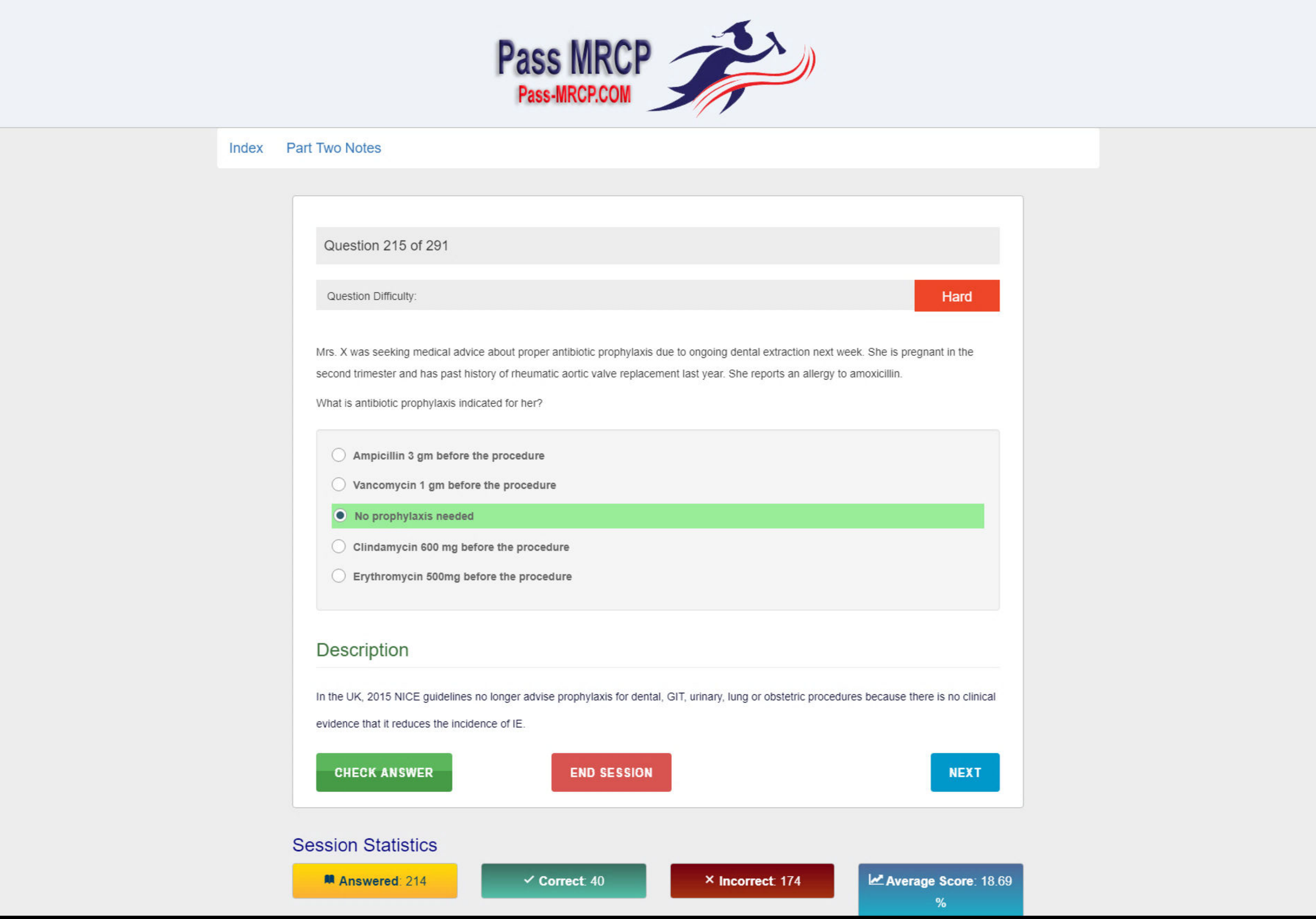
What is the most likely diagnosis?

- ○ **Hyponatremia**
- ● **Hypomagnesemia**
- ○ **Hypophosphatemia**
- ○ **Hypokalemia**
- ○ **Hyperkalemia**

Description

The ECG shows prominent U waves (small deflection immediately following the T wave, usually in the same direction as the T wave) which are characteristics for hypokalemia.

CHECK ANSWER END SESSION NEXT



Question 215 of 291

Question Difficulty: Hard

Mrs. X was seeking medical advice about proper antibiotic prophylaxis due to ongoing dental extraction next week. She is pregnant in the second trimester and has past history of rheumatic aortic valve replacement last year. She reports an allergy to amoxicillin.

What is antibiotic prophylaxis indicated for her?

- ○ **Ampicillin 3 gm before the procedure**
- ○ **Vancomycin 1 gm before the procedure**
- ● **No prophylaxis needed**
- ○ **Clindamycin 600 mg before the procedure**
- ○ **Erythromycin 500mg before the procedure**

Description

In the UK, 2015 NICE guidelines no longer advise prophylaxis for dental, GIT, urinary, lung or obstetric procedures because there is no clinical evidence that it reduces the incidence of IE.

Session Statistics

Answered: 214

✓ **Correct**: 40

× **Incorrect**: 174

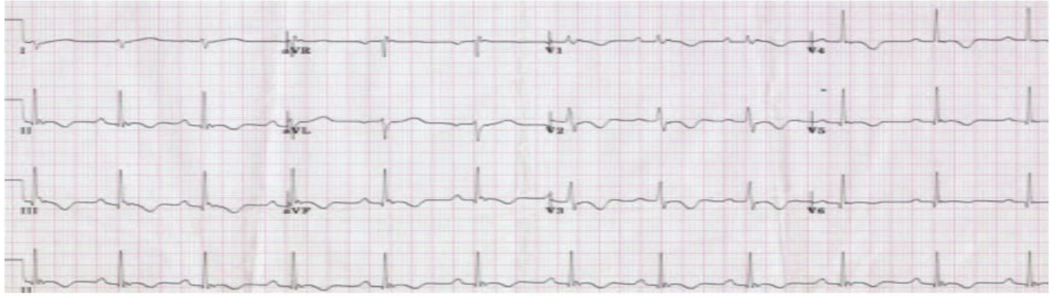
Average Score: 18.69 %

Question 216 of 291

Question Difficulty: **Hard**

25 years Mr. X is complaining of 2 year history of syncope of unknown cause. He has no history of any disease and not a drug or alcohol addict. There is no known family history of heart disease.

His tilt test is normal, echocardiogram shows enlarged right ventricular wall and thin free wall, and his ECG is shown in the image.



What is the most likely diagnosis?

- ○ **WPW Syndrome**
- ● **Brugada syndrome**
- ○ **Arrhythmogenic right ventricular cardiomyopathy**
- ○ **Romano Ward Syndrome**
- ○ **Hypertrophic Cardiomyopathy**

Description

This patient has arrhythmogenic right ventricular cardiomyopathy (ARVC). It is an autosomal dominant cardiovascular disease in which the right ventricular myocardium is replaced by fibro fatty tissue.

ECG shows T wave inversion in V1-3 and epsilon wave (a terminal notch in the QRS complex) is found in about 50% of cases.

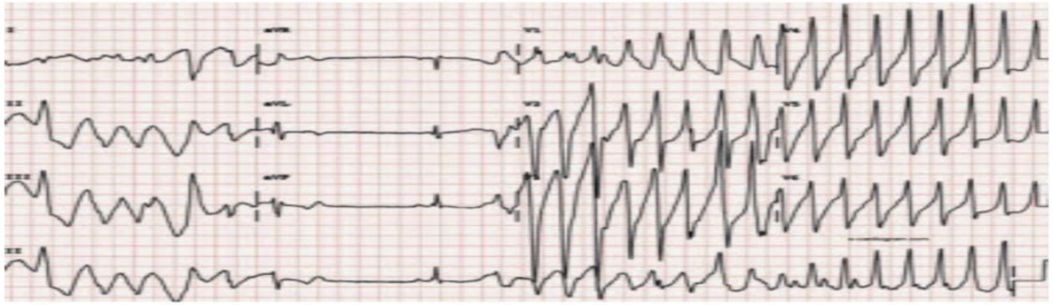
Session Statistics

Question 217 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the emergency department due to collapse. He had no history of any chronic disease except he had started chloroquine for malaria prophylaxis.

Examinations show rate 120/min, blood pressure is 90/60 mmHg and there are signs of heart failure. ECG is shown in the image.



What is the cause of his collapse?

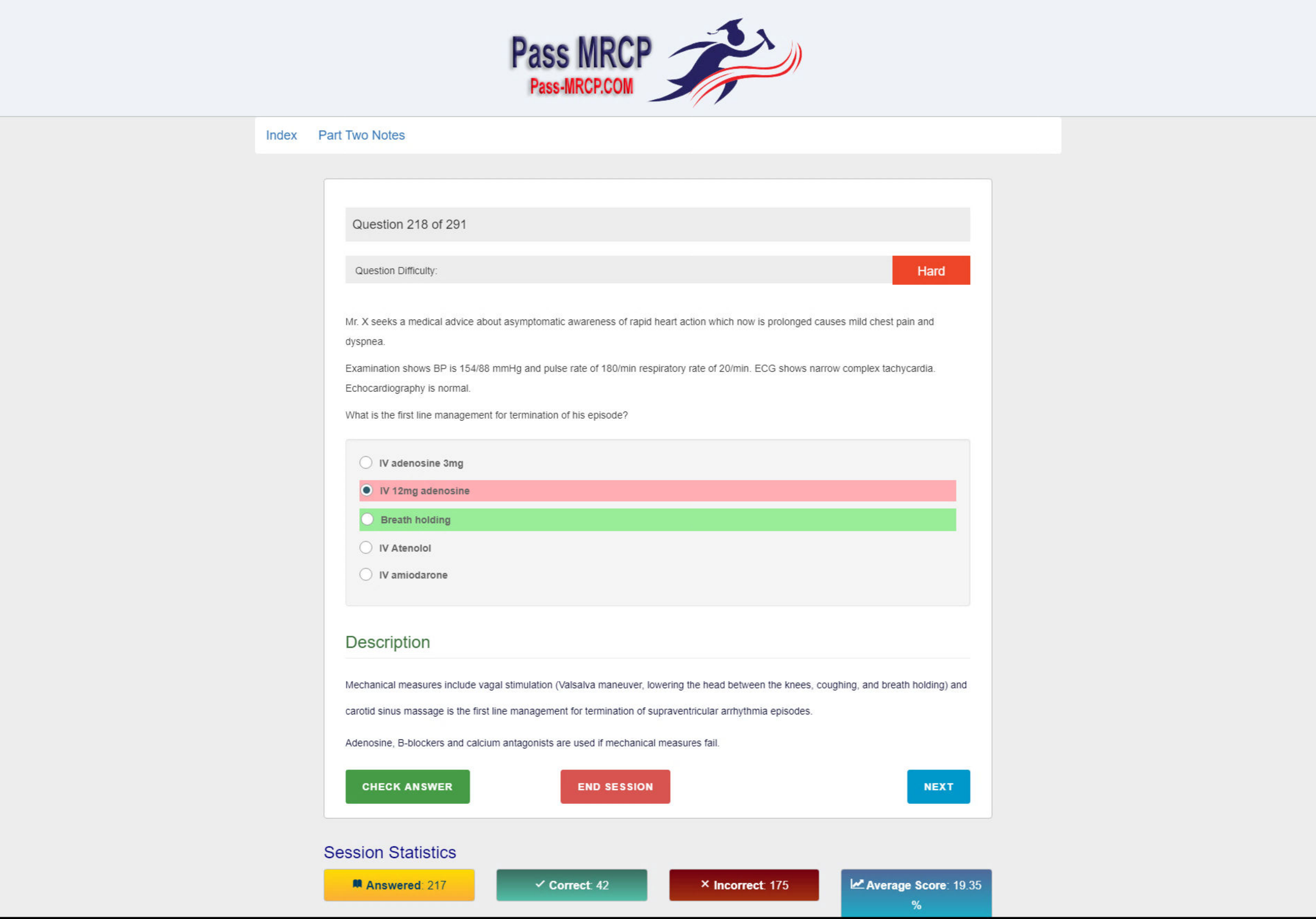
- ○ **Ventricular tachycardia**
- ● **Torsade de Points**
- ○ **WPW syndrome**
- ○ **Ventricular fibrillation**
- ○ **Atrial flutter**

Description

The ECG shows features of Torsade de Points which are polymorphic non-sustained VT with QRS complexes of different amplitude and twisting around isoelectric line.

CHECK ANSWER END SESSION NEXT

Session Statistics



Question 218 of 291

Question Difficulty: Hard

Mr. X seeks a medical advice about asymptomatic awareness of rapid heart action which now is prolonged causes mild chest pain and dyspnea.

Examination shows BP is 154/88 mmHg and pulse rate of 180/min respiratory rate of 20/min. ECG shows narrow complex tachycardia. Echocardiography is normal.

What is the first line management for termination of his episode?

- ○ **IV adenosine 3mg**
- ● **IV 12mg adenosine**
- ○ **Breath holding**
- ○ **IV Atenolol**
- ○ **IV amiodarone**

Description

Mechanical measures include vagal stimulation (Valsalva maneuver, lowering the head between the knees, coughing, and breath holding) and carotid sinus massage is the first line management for termination of supraventricular arrhythmia episodes.

Adenosine, B-blockers and calcium antagonists are used if mechanical measures fail.

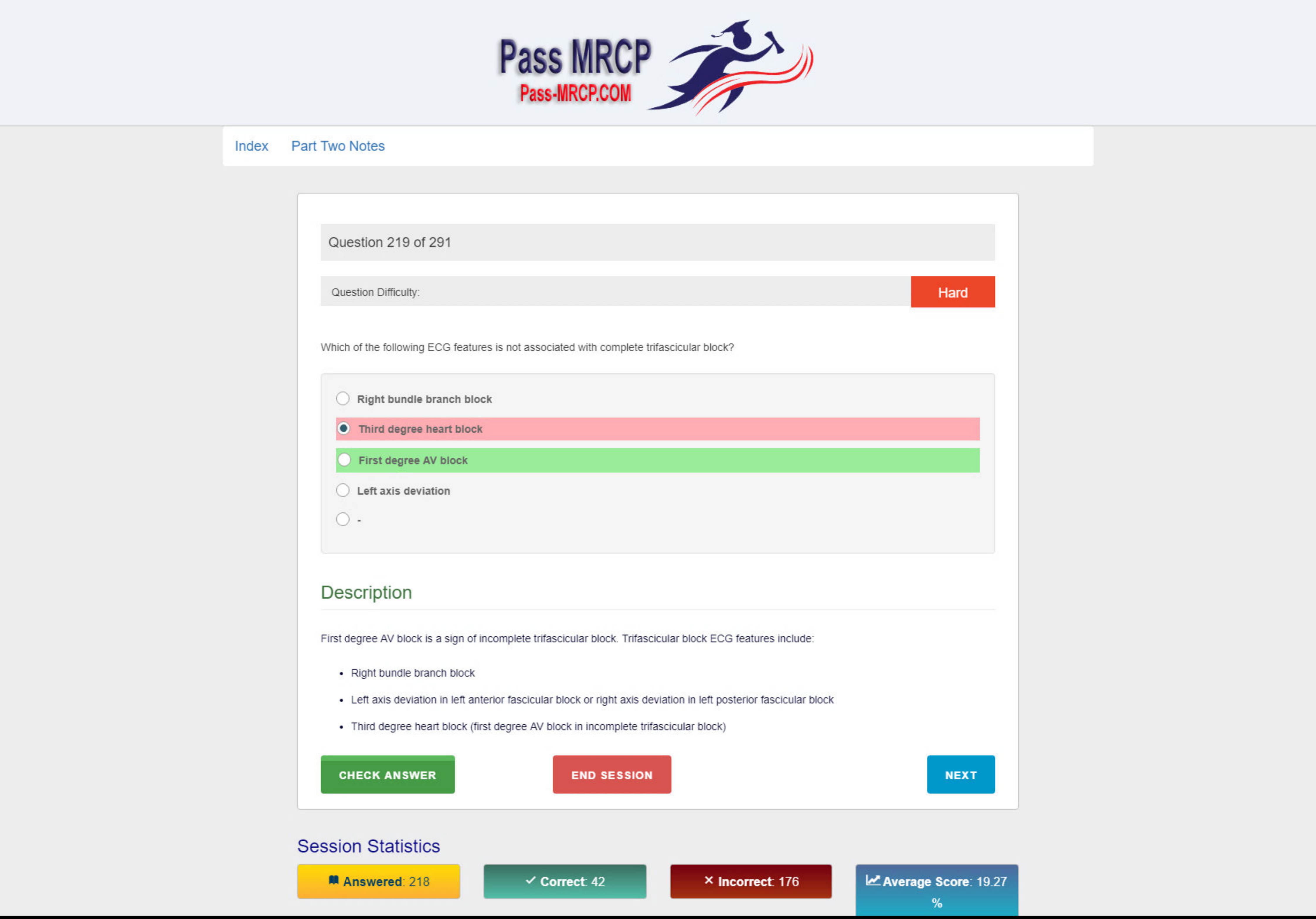
Session Statistics

Answered: 217

✓ Correct: 42

✕ Incorrect: 175

Average Score: 19.35 %


Pass MRCP
Pass-MRCP.COM
Index
Part Two Notes

Question 219 of 291

Question Difficulty: **Hard**

Which of the following ECG features is not associated with complete trifascicular block?

○ **Right bundle branch block**

● **Third degree heart block**

○ **First degree AV block**

○ **Left axis deviation**

○ -

Description

First degree AV block is a sign of incomplete trifascicular block. Trifascicular block ECG features include:

- Right bundle branch block
- Left axis deviation in left anterior fascicular block or right axis deviation in left posterior fascicular block
- Third degree heart block (first degree AV block in incomplete trifascicular block)

CHECK ANSWER
END SESSION
NEXT

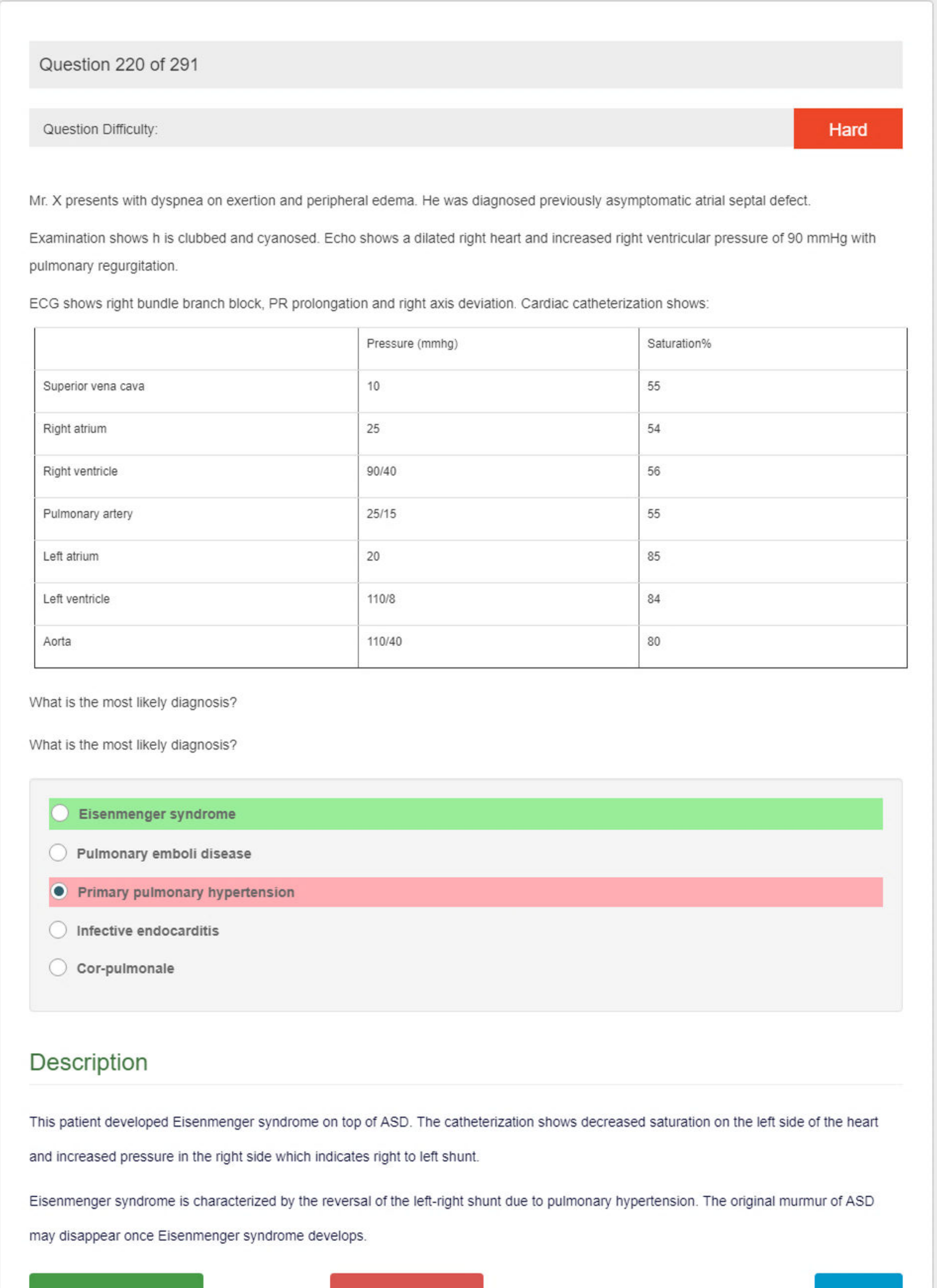
Session Statistics

Answered: 218

✓ **Correct**: 42

✕ **Incorrect**: 176

Average Score: 19.27 %



Question 220 of 291

Question Difficulty: **Hard**

Mr. X presents with dyspnea on exertion and peripheral edema. He was diagnosed previously asymptomatic atrial septal defect.

Examination shows h is clubbed and cyanosed. Echo shows a dilated right heart and increased right ventricular pressure of 90 mmHg with pulmonary regurgitation.

ECG shows right bundle branch block, PR prolongation and right axis deviation. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	25	54
Right ventricle	90/40	56
Pulmonary artery	25/15	55
Left atrium	20	85
Left ventricle	110/8	84
Aorta	110/40	80

What is the most likely diagnosis?

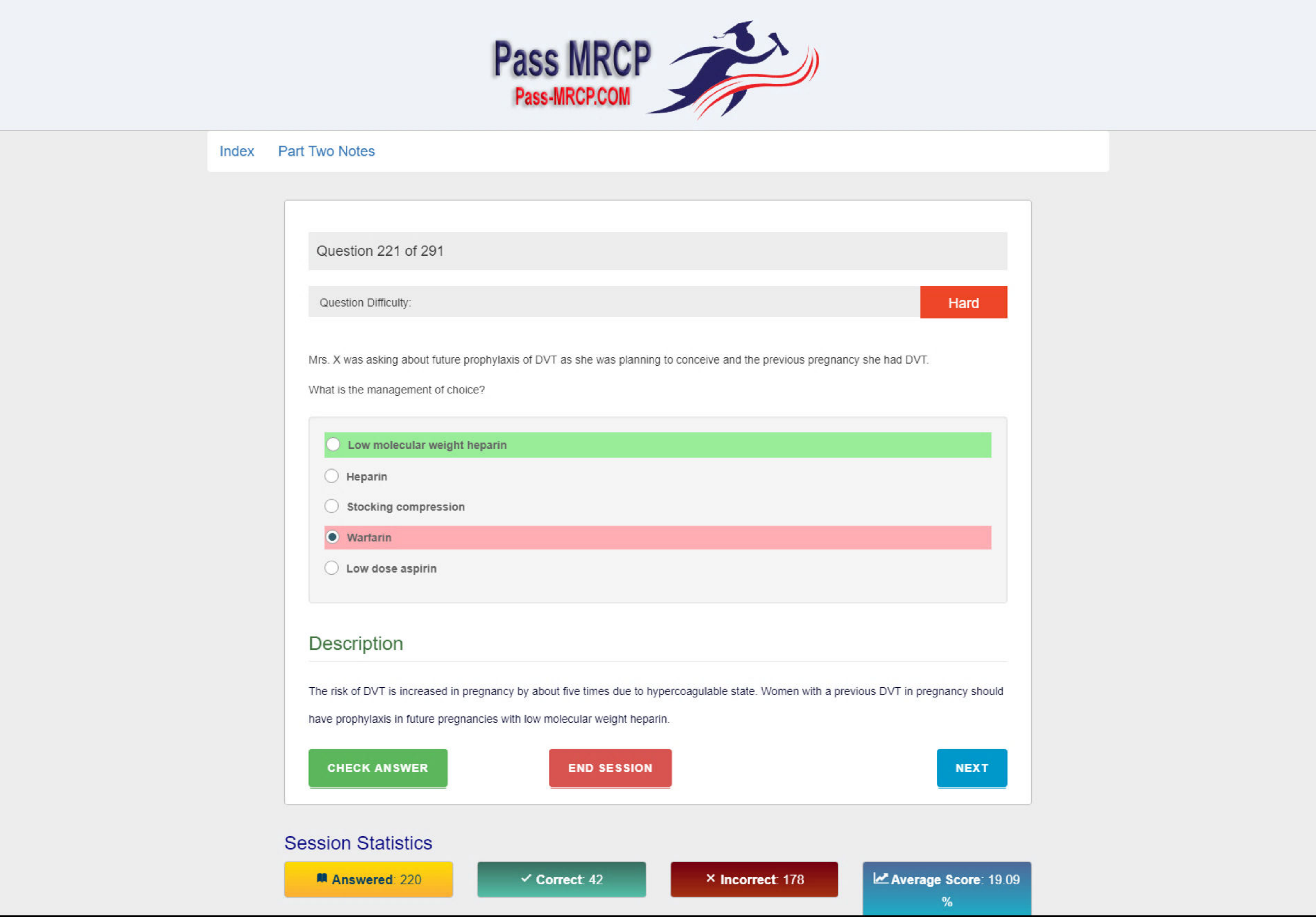
What is the most likely diagnosis?

- ○ **Eisenmenger syndrome**
- ○ **Pulmonary emboli disease**
- ● **Primary pulmonary hypertension**
- ○ **Infective endocarditis**
- ○ **Cor-pulmonale**

Description

This patient developed Eisenmenger syndrome on top of ASD. The catheterization shows decreased saturation on the left side of the heart and increased pressure in the right side which indicates right to left shunt.

Eisenmenger syndrome is characterized by the reversal of the left-right shunt due to pulmonary hypertension. The original murmur of ASD may disappear once Eisenmenger syndrome develops.


Pass MRCP
Pass-MRCP.COM
Index
Part Two Notes

Question 221 of 291

Question Difficulty: Hard

Mrs. X was asking about future prophylaxis of DVT as she was planning to conceive and the previous pregnancy she had DVT.

What is the management of choice?

- ○ **Low molecular weight heparin**
- ○ **Heparin**
- ○ **Stocking compression**
- ● **Warfarin**
- ○ **Low dose aspirin**

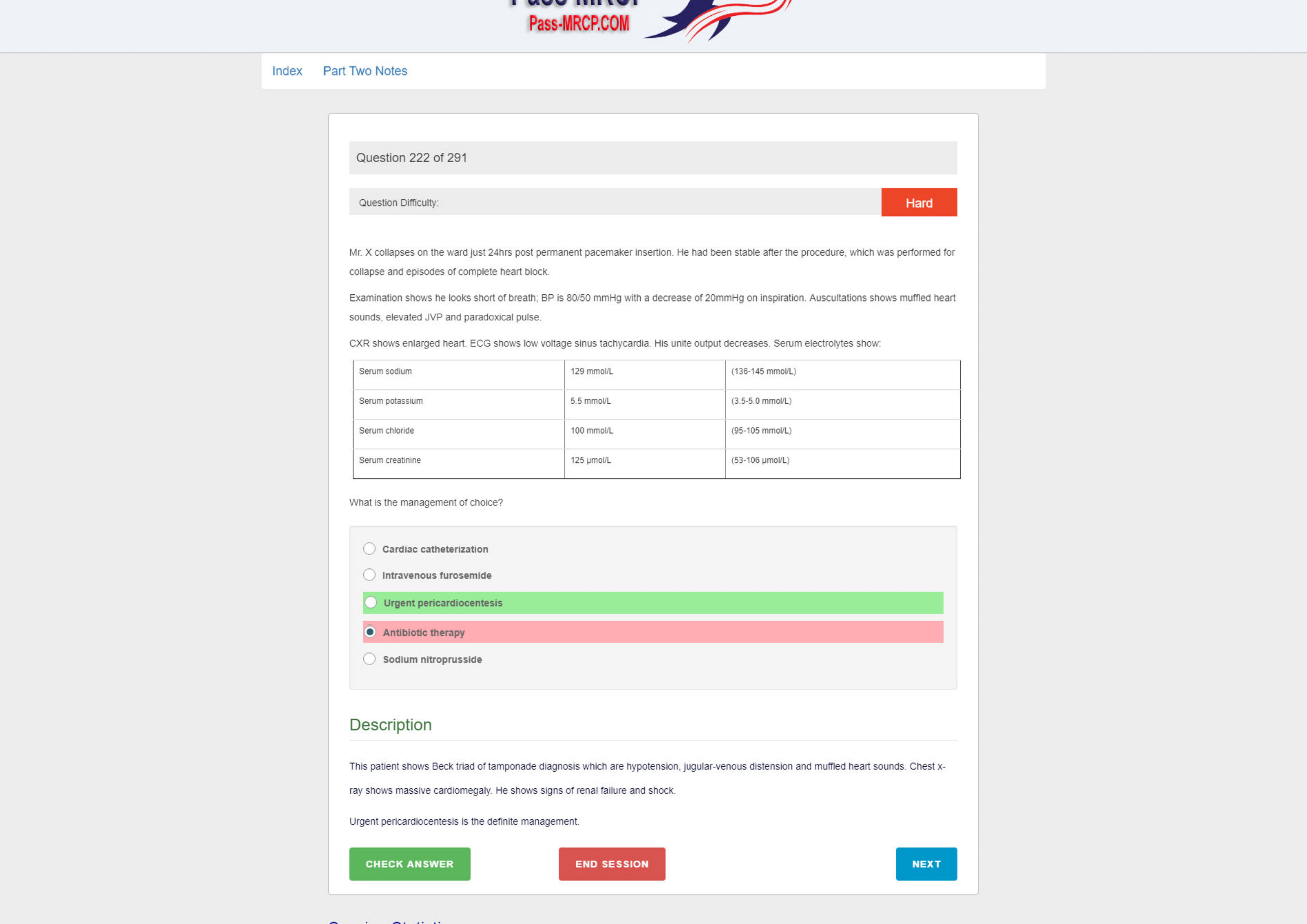
Description

The risk of DVT is increased in pregnancy by about five times due to hypercoagulable state. Women with a previous DVT in pregnancy should have prophylaxis in future pregnancies with low molecular weight heparin.

CHECK ANSWER
END SESSION
NEXT

Session Statistics

Answered: 220
Correct: 42
Incorrect: 178
Average Score: 19.09 %



Question 222 of 291

Question Difficulty: **Hard**

Mr. X collapses on the ward just 24hrs post permanent pacemaker insertion. He had been stable after the procedure, which was performed for collapse and episodes of complete heart block.

Examination shows he looks short of breath; BP is 80/50 mmHg with a decrease of 20mmHg on inspiration. Auscultations shows muffled heart sounds, elevated JVP and paradoxical pulse.

CXR shows enlarged heart. ECG shows low voltage sinus tachycardia. His unite output decreases. Serum electrolytes show:

Serum sodium	129 mmol/L	(136-145 mmol/L)
Serum potassium	5.5 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	100 mmol/L	(95-105 mmol/L)
Serum creatinine	125 µmol/L	(53-106 µmol/L)

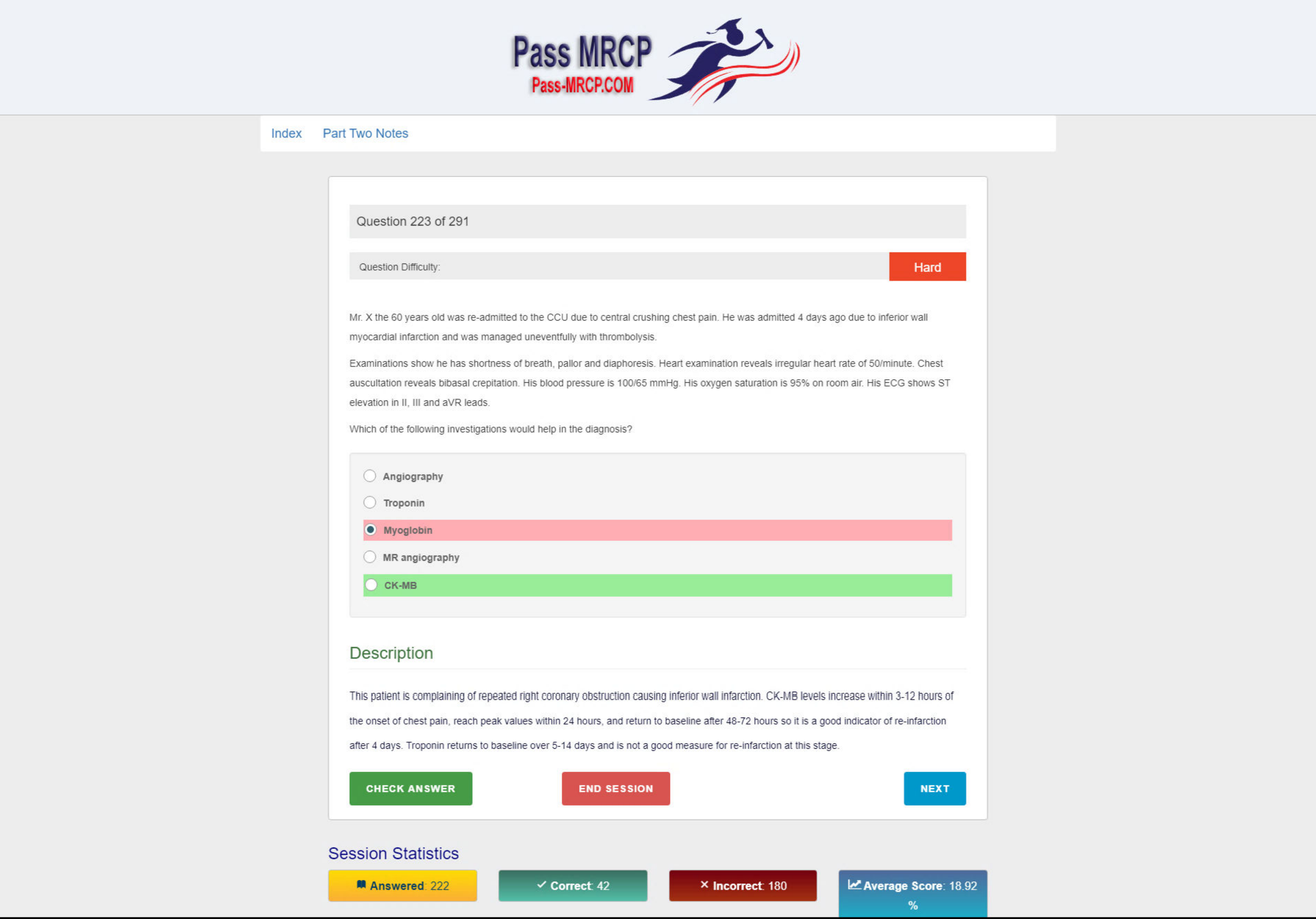
What is the management of choice?

- ○ **Cardiac catheterization**
- ○ **Intravenous furosemide**
- ○ **Urgent pericardiocentesis**
- ● **Antibiotic therapy**
- ○ **Sodium nitroprusside**

Description

This patient shows Beck triad of tamponade diagnosis which are hypotension, jugular-venous distension and muffled heart sounds. Chest x-ray shows massive cardiomegaly. He shows signs of renal failure and shock.

Urgent pericardiocentesis is the definite management.



Question 223 of 291

Question Difficulty: **Hard**

Mr. X the 60 years old was re-admitted to the CCU due to central crushing chest pain. He was admitted 4 days ago due to inferior wall myocardial infarction and was managed uneventfully with thrombolysis.

Examinations show he has shortness of breath, pallor and diaphoresis. Heart examination reveals irregular heart rate of 50/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 100/65 mmHg. His oxygen saturation is 95% on room air. His ECG shows ST elevation in II, III and aVR leads.

Which of the following investigations would help in the diagnosis?

- ○ **Angiography**
- ○ **Troponin**
- ● **Myoglobin**
- ○ **MR angiography**
- ○ **CK-MB**

Description

This patient is complaining of repeated right coronary obstruction causing inferior wall infarction. CK-MB levels increase within 3-12 hours of the onset of chest pain, reach peak values within 24 hours, and return to baseline after 48-72 hours so it is a good indicator of re-infarction after 4 days. Troponin returns to baseline over 5-14 days and is not a good measure for re-infarction at this stage.

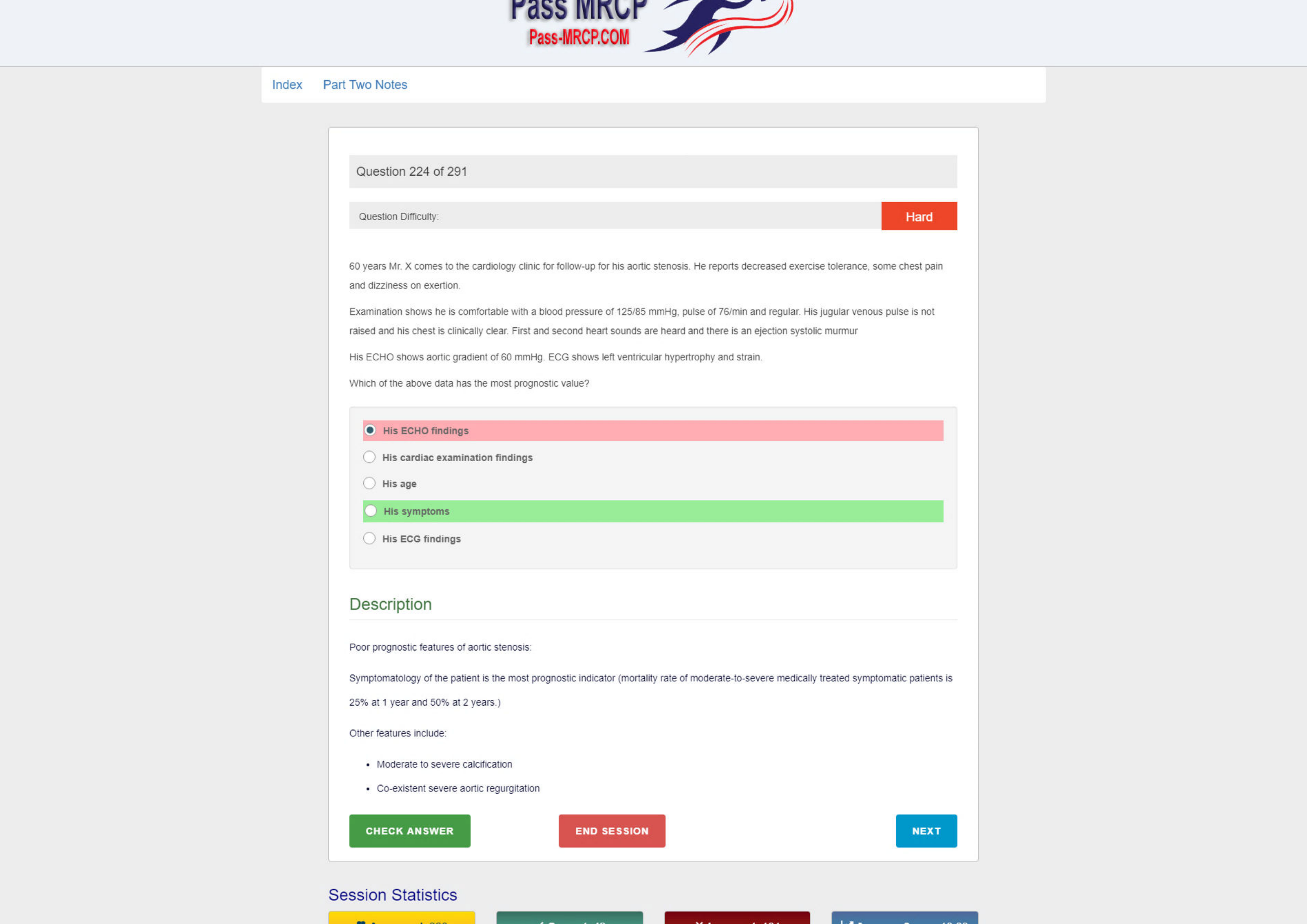
Session Statistics

Answered: 222

✓ **Correct**: 42

✕ **Incorrect**: 180

Average Score: 18.92 %



Question 224 of 291

Question Difficulty: Hard

60 years Mr. X comes to the cardiology clinic for follow-up for his aortic stenosis. He reports decreased exercise tolerance, some chest pain and dizziness on exertion.

Examination shows he is comfortable with a blood pressure of 125/85 mmHg, pulse of 76/min and regular. His jugular venous pulse is not raised and his chest is clinically clear. First and second heart sounds are heard and there is an ejection systolic murmur

His ECHO shows aortic gradient of 60 mmHg. ECG shows left ventricular hypertrophy and strain.

Which of the above data has the most prognostic value?

● **His ECHO findings**

○ **His cardiac examination findings**

○ **His age**

○ **His symptoms**

○ **His ECG findings**

Description

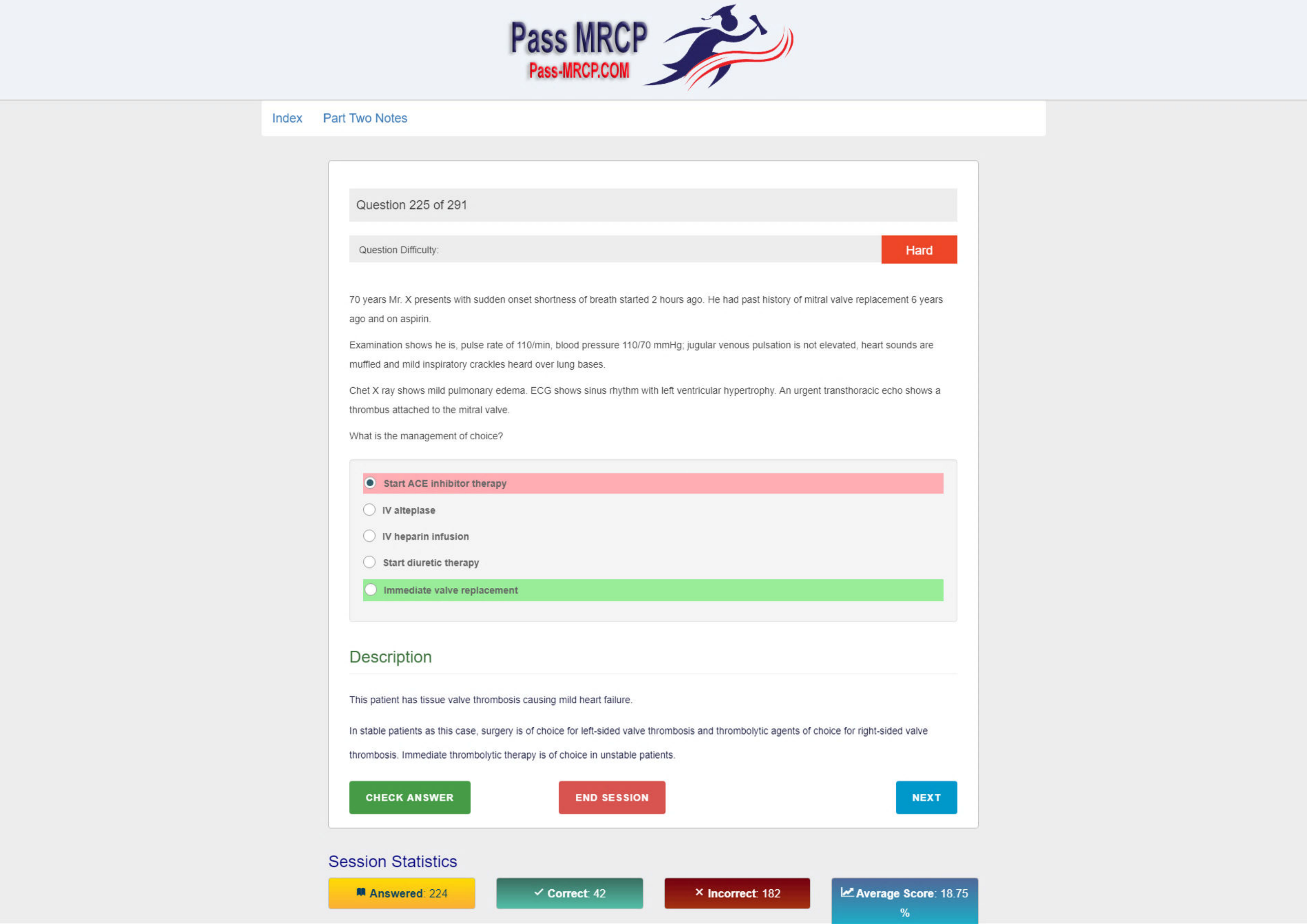
Poor prognostic features of aortic stenosis:

Symptomatology of the patient is the most prognostic indicator (mortality rate of moderate-to-severe medically treated symptomatic patients is 25% at 1 year and 50% at 2 years.)

Other features include:

- Moderate to severe calcification
- Co-existent severe aortic regurgitation

Session Statistics



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Question 225 of 291

Question Difficulty: **Hard**

70 years Mr. X presents with sudden onset shortness of breath started 2 hours ago. He had past history of mitral valve replacement 6 years ago and on aspirin.

Examination shows he is, pulse rate of 110/min, blood pressure 110/70 mmHg; jugular venous pulsation is not elevated, heart sounds are muffled and mild inspiratory crackles heard over lung bases.

Chet X ray shows mild pulmonary edema. ECG shows sinus rhythm with left ventricular hypertrophy. An urgent transthoracic echo shows a thrombus attached to the mitral valve.

What is the management of choice?

- ● **Start ACE inhibitor therapy**
- ○ **IV alteplase**
- ○ **IV heparin infusion**
- ○ **Start diuretic therapy**
- ○ **Immediate valve replacement**

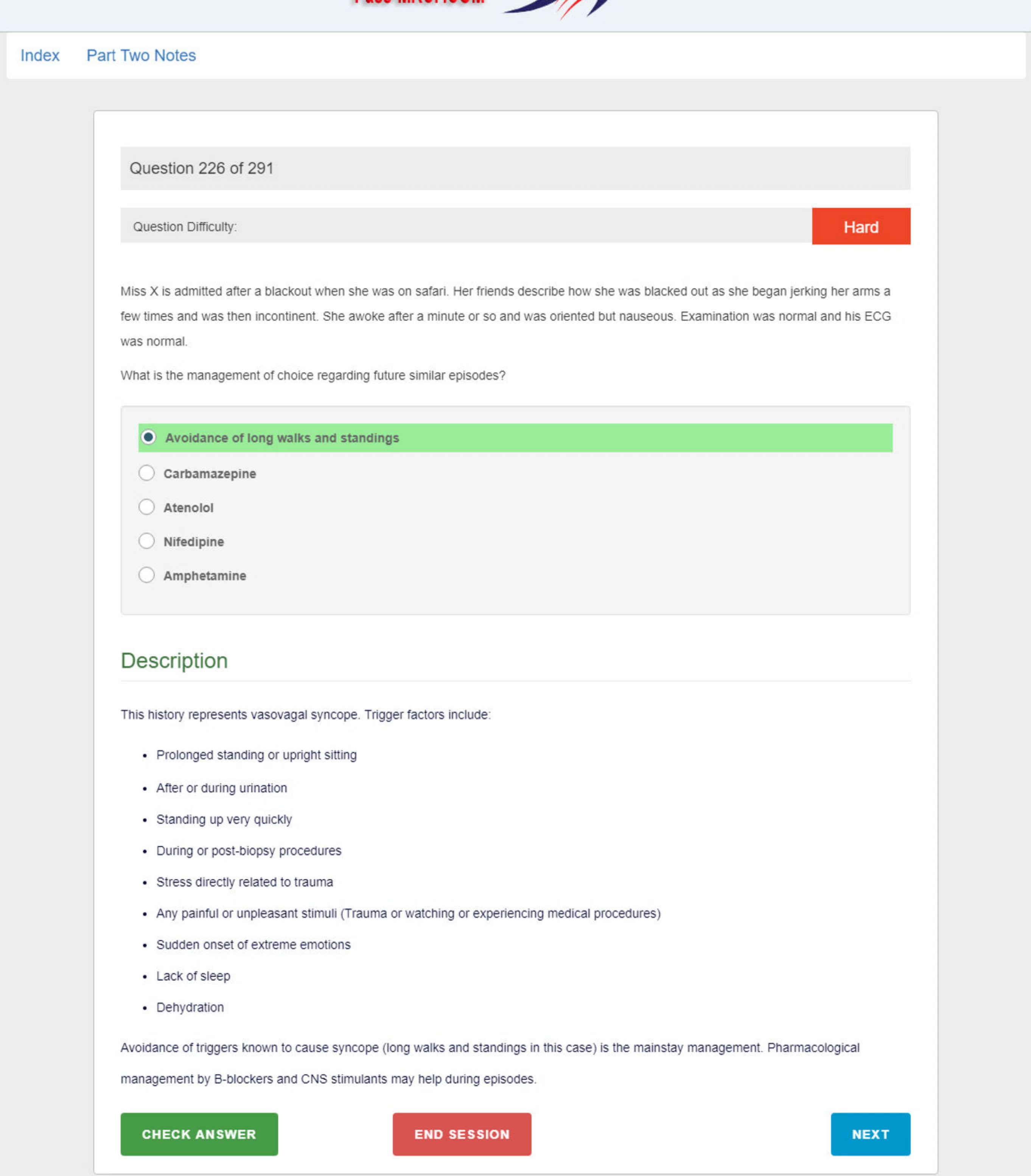
Description

This patient has tissue valve thrombosis causing mild heart failure.

In stable patients as this case, surgery is of choice for left-sided valve thrombosis and thrombolytic agents of choice for right-sided valve thrombosis. Immediate thrombolytic therapy is of choice in unstable patients.

Session Statistics

Answered: 224
Correct: 42
Incorrect: 182
Average Score: 18.75 %



Question 226 of 291

Question Difficulty: **Hard**

Miss X is admitted after a blackout when she was on safari. Her friends describe how she was blacked out as she began jerking her arms a few times and was then incontinent. She awoke after a minute or so and was oriented but nauseous. Examination was normal and his ECG was normal.

What is the management of choice regarding future similar episodes?

● **Avoidance of long walks and standings**
○ **Carbamazepine**
○ **Atenolol**
○ **Nifedipine**
○ **Amphetamine**

Description

This history represents vasovagal syncope. Trigger factors include:

- Prolonged standing or upright sitting
- After or during urination
- Standing up very quickly
- During or post-biopsy procedures
- Stress directly related to trauma
- Any painful or unpleasant stimuli (Trauma or watching or experiencing medical procedures)
- Sudden onset of extreme emotions
- Lack of sleep
- Dehydration

Avoidance of triggers known to cause syncope (long walks and standings in this case) is the mainstay management. Pharmacological management by B-blockers and CNS stimulants may help during episodes.

Question 227 of 291

Question Difficulty: **Hard**

Mr. X presents with dyspnea on exertion and peripheral edema. He was diagnosed previously asymptomatic ventricular septal defect.

Examination shows h is clubbed and cyanosed. Auscultation shows disappeared pansystolic murmur that was noticed in previous occasions.

Echo shows a dilated right ventricle and increased right ventricular pressure of 120 mmHg. ECG shows right ventricular hypertrophy with strain. Cardiac catheterization shows:

	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	10	54
Right ventricle	120/20	56
Pulmonary artery	30/15	55
Left atrium	20	99
Left ventricle	110/8	84
Aorta	110/40	80

What is the management of choice?

Right ventricle	120/20	56
Pulmonary artery	30/15	55
Left atrium	20	99
Left ventricle	110/8	84
Aorta	110/40	80

What is the management of choice?

○ **Anticoagulation**

● **Heart and lung transplantation**

○ **Long-term oxygen therapy**

○ **Follow up**

○ **Refer for surgical closure**

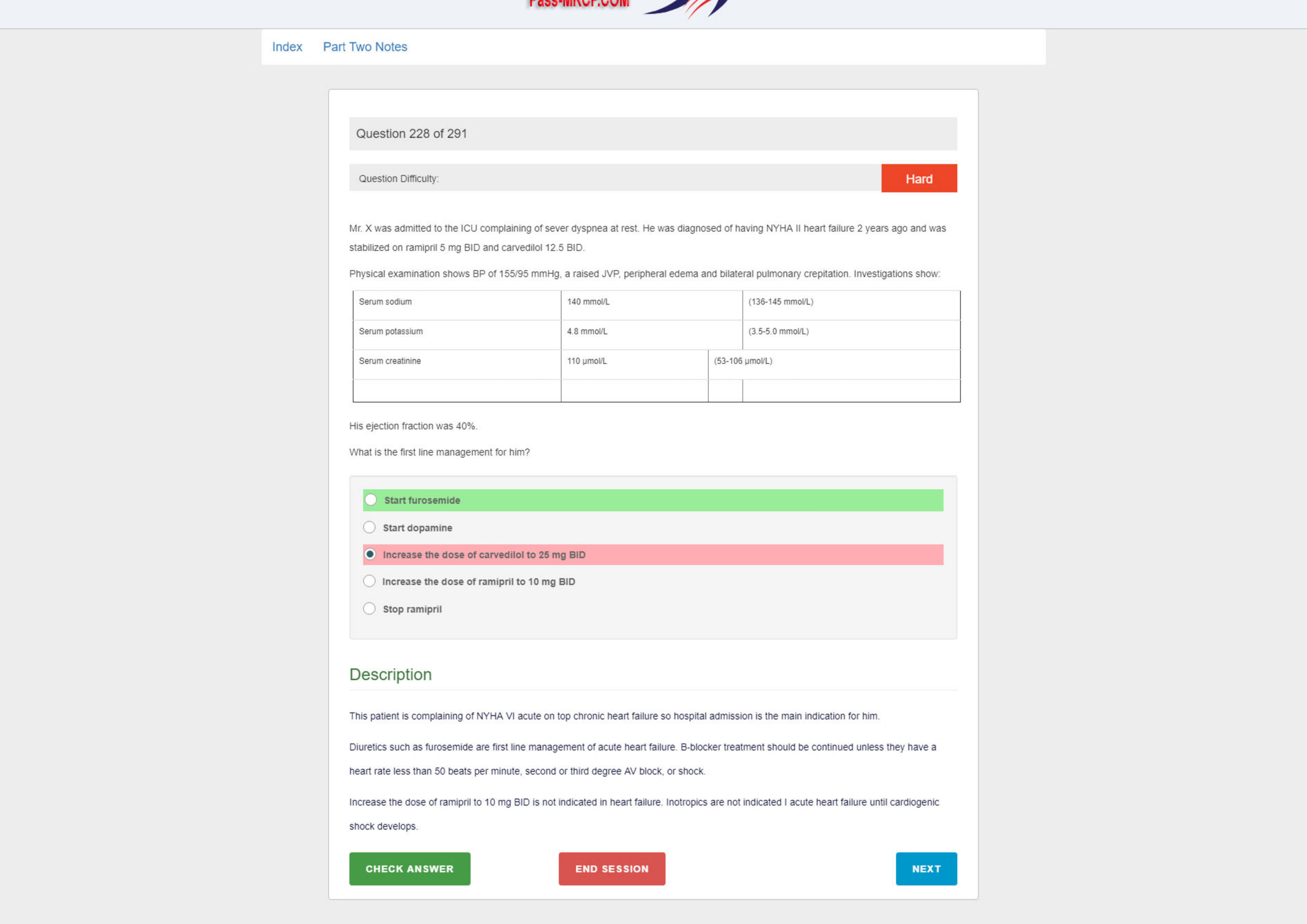
Description

This patient developed Eisenmenger syndrome due to reversal of shunting from right to the left side. Heart-lung transplantation or a lung transplant is the only management.

CHECK ANSWER END SESSION NEXT

Session Statistics

Answered: 226 ✓ **Correct**: 43 ✕ **Incorrect**: 183 **Average Score**: 19.03 %



Question 228 of 291

Question Difficulty: Hard

Mr. X was admitted to the ICU complaining of sever dyspnea at rest. He was diagnosed of having NYHA II heart failure 2 years ago and was stabilized on ramipril 5 mg BID and carvedilol 12.5 BID.

Physical examination shows BP of 155/95 mmHg, a raised JVP, peripheral edema and bilateral pulmonary crepitation. Investigations show:

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	110 µmol/L	(53-106 µmol/L)

His ejection fraction was 40%.

What is the first line management for him?

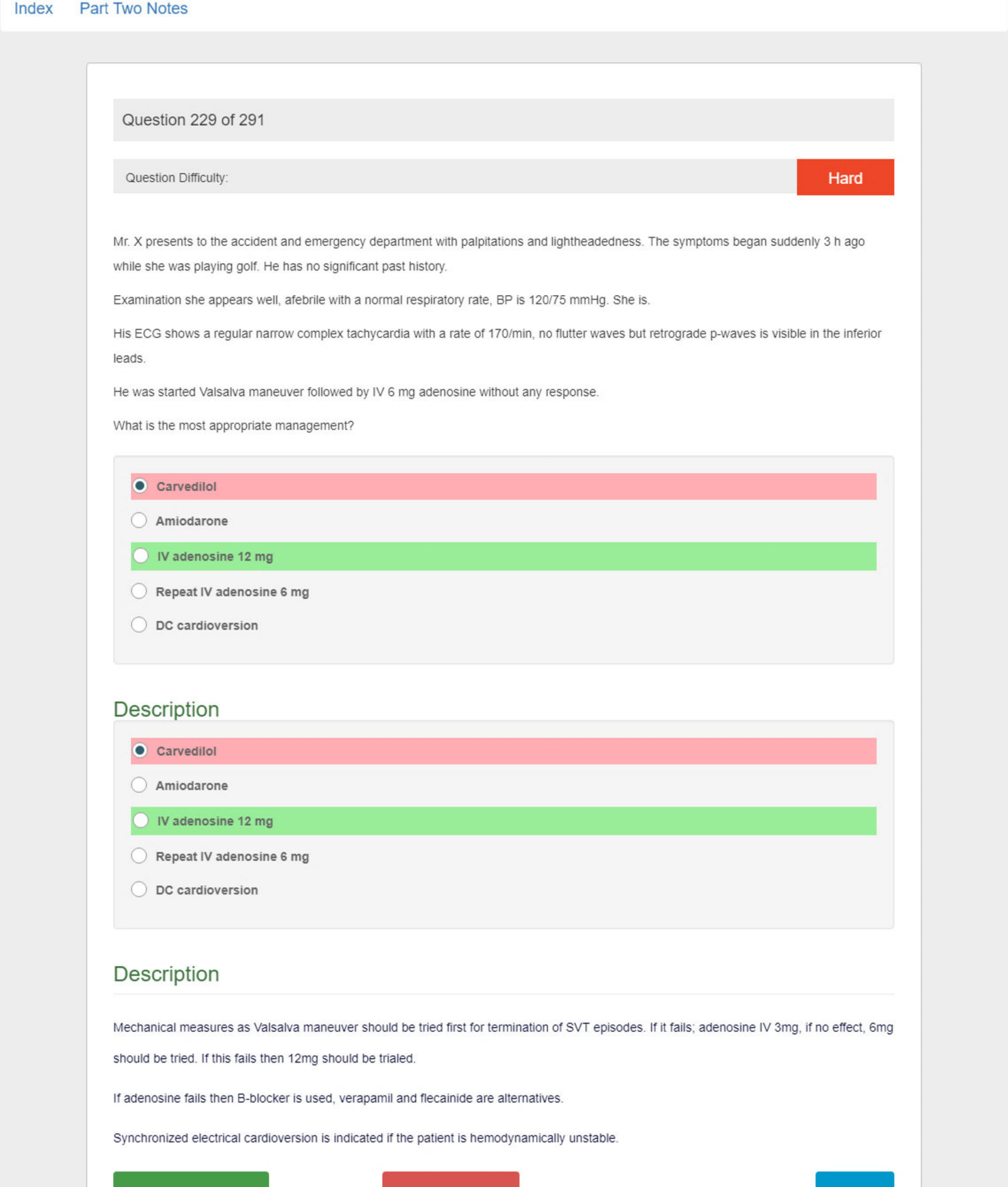
○ Start furosemide
○ Start dopamine
● Increase the dose of carvedilol to 25 mg BID
○ Increase the dose of ramipril to 10 mg BID
○ Stop ramipril

Description

This patient is complaining of NYHA VI acute on top chronic heart failure so hospital admission is the main indication for him.

Diuretics such as furosemide are first line management of acute heart failure. B-blocker treatment should be continued unless they have a heart rate less than 50 beats per minute, second or third degree AV block, or shock.

Increase the dose of ramipril to 10 mg BID is not indicated in heart failure. Inotropics are not indicated I acute heart failure until cardiogenic shock develops.



Question 229 of 291

Question Difficulty: **Hard**

Mr. X presents to the accident and emergency department with palpitations and lightheadedness. The symptoms began suddenly 3 h ago while she was playing golf. He has no significant past history.

Examination she appears well, afebrile with a normal respiratory rate, BP is 120/75 mmHg. She is.

His ECG shows a regular narrow complex tachycardia with a rate of 170/min, no flutter waves but retrograde p-waves is visible in the inferior leads.

He was started Valsalva maneuver followed by IV 6 mg adenosine without any response.

What is the most appropriate management?

- ● **Carvedilol**
- ○ **Amiodarone**
- ○ **IV adenosine 12 mg**
- ○ **Repeat IV adenosine 6 mg**
- ○ **DC cardioversion**

Description

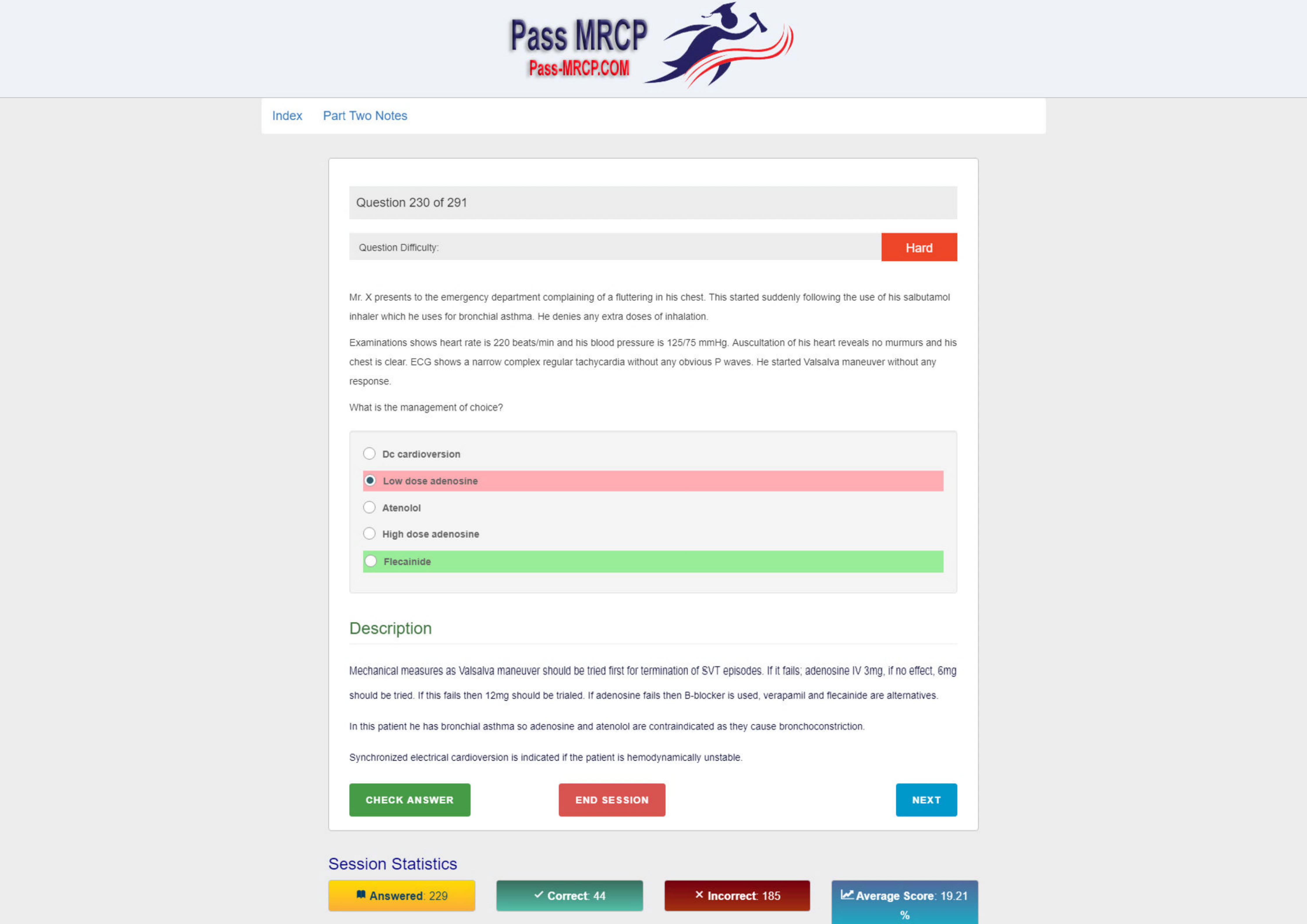
- ● **Carvedilol**
- ○ **Amiodarone**
- ○ **IV adenosine 12 mg**
- ○ **Repeat IV adenosine 6 mg**
- ○ **DC cardioversion**

Description

Mechanical measures as Valsalva maneuver should be tried first for termination of SVT episodes. If it fails; adenosine IV 3mg, if no effect, 6mg should be tried. If this fails then 12mg should be trialed.

If adenosine fails then B-blocker is used, verapamil and flecainide are alternatives.

Synchronized electrical cardioversion is indicated if the patient is hemodynamically unstable.



Question 230 of 291

Question Difficulty: **Hard**

Mr. X presents to the emergency department complaining of a fluttering in his chest. This started suddenly following the use of his salbutamol inhaler which he uses for bronchial asthma. He denies any extra doses of inhalation.

Examinations shows heart rate is 220 beats/min and his blood pressure is 125/75 mmHg. Auscultation of his heart reveals no murmurs and his chest is clear. ECG shows a narrow complex regular tachycardia without any obvious P waves. He started Valsalva maneuver without any response.

What is the management of choice?

- ○ **Dc cardioversion**
- ● **Low dose adenosine**
- ○ **Atenolol**
- ○ **High dose adenosine**
- ○ **Flecainide**

Description

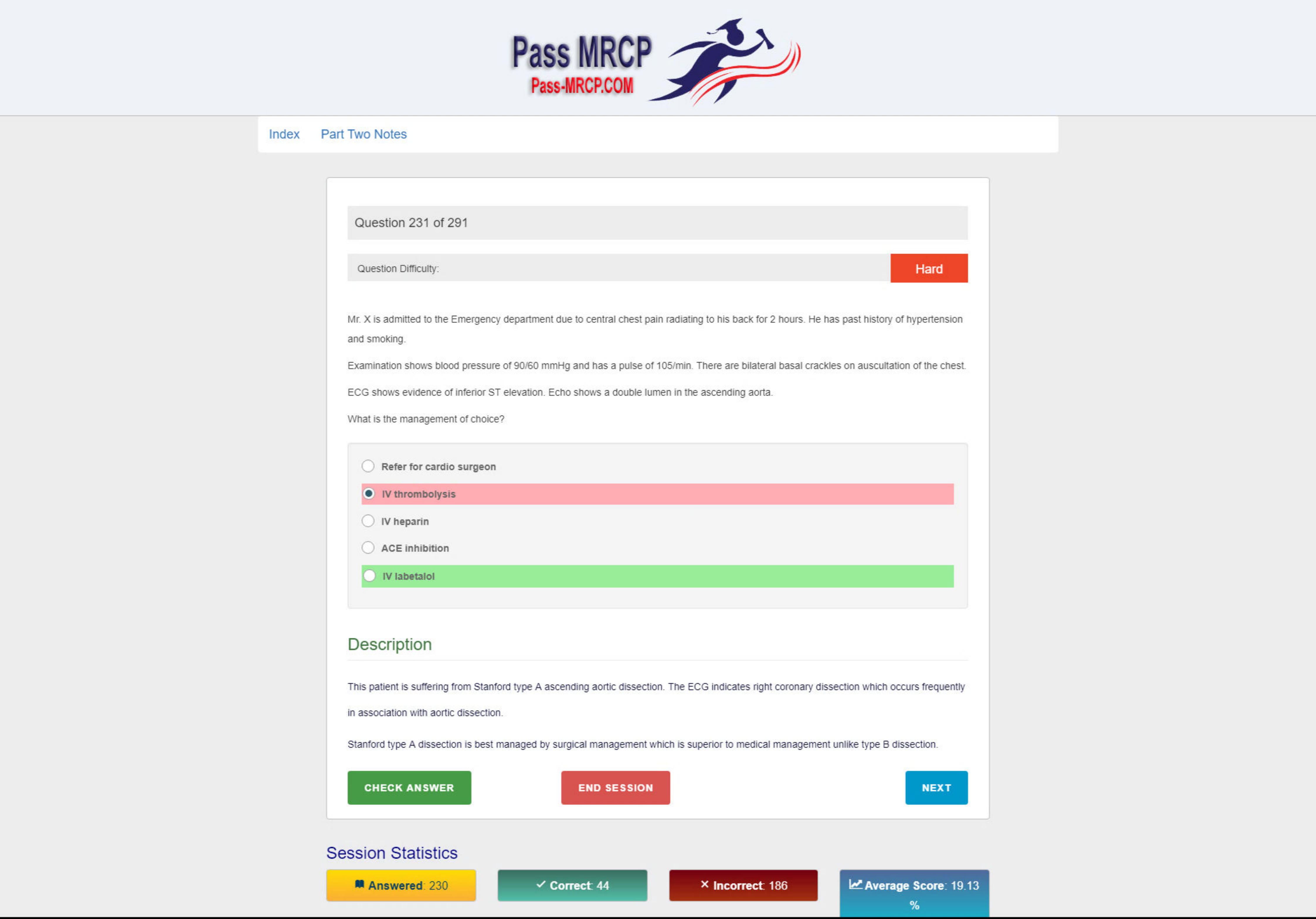
Mechanical measures as Valsalva maneuver should be tried first for termination of SVT episodes. If it fails; adenosine IV 3mg, if no effect, 6mg should be tried. If this fails then 12mg should be trialed. If adenosine fails then B-blocker is used, verapamil and flecainide are alternatives.

In this patient he has bronchial asthma so adenosine and atenolol are contraindicated as they cause bronchoconstriction.

Synchronized electrical cardioversion is indicated if the patient is hemodynamically unstable.

Session Statistics

Answered: 229
✓ **Correct**: 44
✕ **Incorrect**: 185
Average Score: 19.21 %



Question 231 of 291

Question Difficulty: Hard

Mr. X is admitted to the Emergency department due to central chest pain radiating to his back for 2 hours. He has past history of hypertension and smoking.

Examination shows blood pressure of 90/60 mmHg and has a pulse of 105/min. There are bilateral basal crackles on auscultation of the chest.

ECG shows evidence of inferior ST elevation. Echo shows a double lumen in the ascending aorta.

What is the management of choice?

- ○ **Refer for cardio surgeon**
- ● **IV thrombolysis**
- ○ **IV heparin**
- ○ **ACE inhibition**
- ○ **IV labetalol**

Description

This patient is suffering from Stanford type A ascending aortic dissection. The ECG indicates right coronary dissection which occurs frequently in association with aortic dissection.

Stanford type A dissection is best managed by surgical management which is superior to medical management unlike type B dissection.

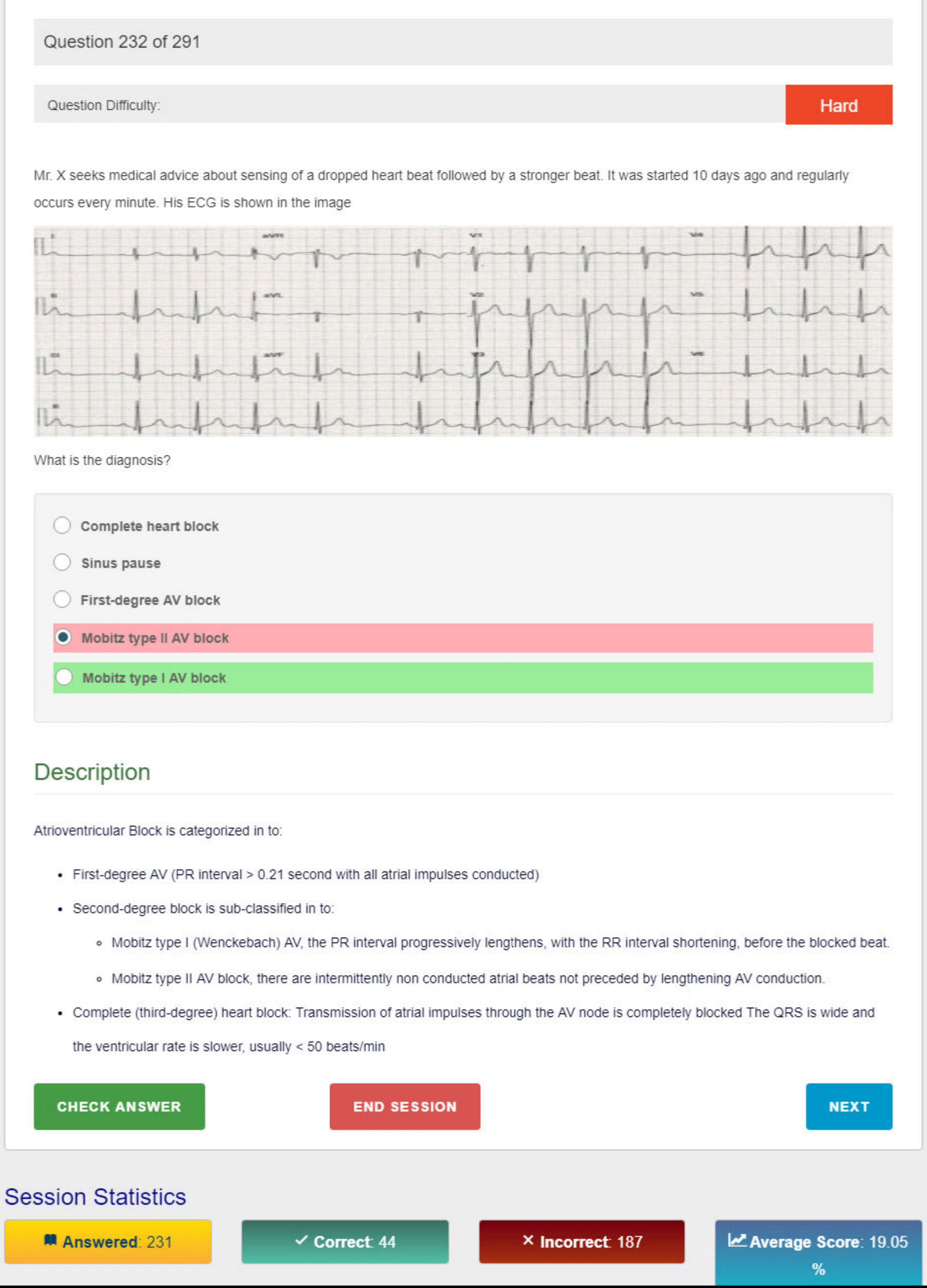
Session Statistics

Answered: 230

✓ **Correct**: 44

✕ **Incorrect**: 186

Average Score: 19.13 %



Question 232 of 291

Question Difficulty: **Hard**

Mr. X seeks medical advice about sensing of a dropped heart beat followed by a stronger beat. It was started 10 days ago and regularly occurs every minute. His ECG is shown in the image

What is the diagnosis?

- ○ **Complete heart block**
- ○ **Sinus pause**
- ○ **First-degree AV block**
- ● **Mobitz type II AV block**
- ○ **Mobitz type I AV block**

Description

Atrioventricular Block is categorized in to:

- First-degree AV (PR interval > 0.21 second with all atrial impulses conducted)
- Second-degree block is sub-classified in to:
  - Mobitz type I (Wenckebach) AV, the PR interval progressively lengthens, with the RR interval shortening, before the blocked beat.
  - Mobitz type II AV block, there are intermittently non conducted atrial beats not preceded by lengthening AV conduction.
- Complete (third-degree) heart block: Transmission of atrial impulses through the AV node is completely blocked The QRS is wide and the ventricular rate is slower, usually < 50 beats/min

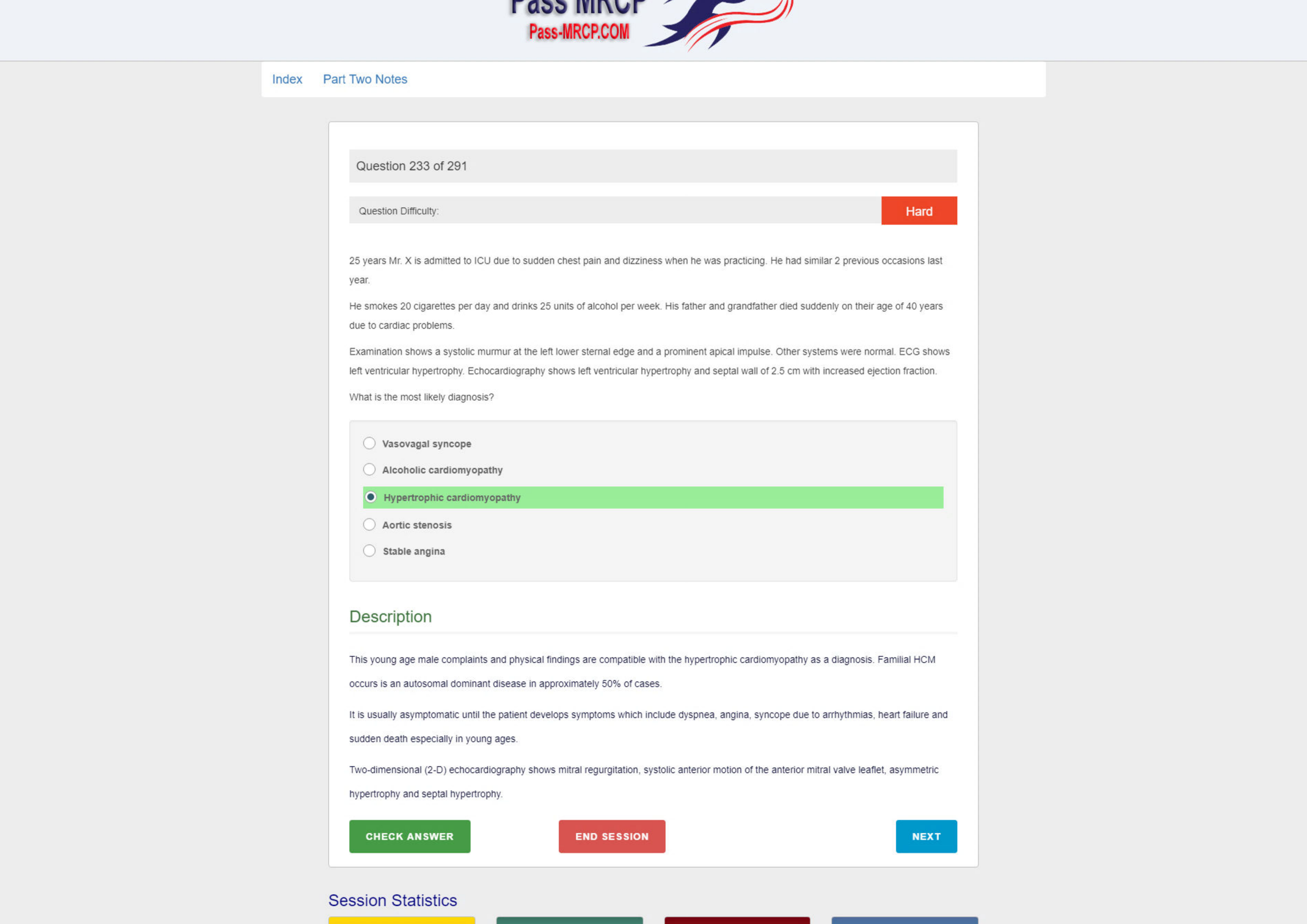
Session Statistics

Answered: 231

Correct: 44

Incorrect: 187

Average Score: 19.05 %



Question 233 of 291

Question Difficulty: Hard

25 years Mr. X is admitted to ICU due to sudden chest pain and dizziness when he was practicing. He had similar 2 previous occasions last year.

He smokes 20 cigarettes per day and drinks 25 units of alcohol per week. His father and grandfather died suddenly on their age of 40 years due to cardiac problems.

Examination shows a systolic murmur at the left lower sternal edge and a prominent apical impulse. Other systems were normal. ECG shows left ventricular hypertrophy. Echocardiography shows left ventricular hypertrophy and septal wall of 2.5 cm with increased ejection fraction.

What is the most likely diagnosis?

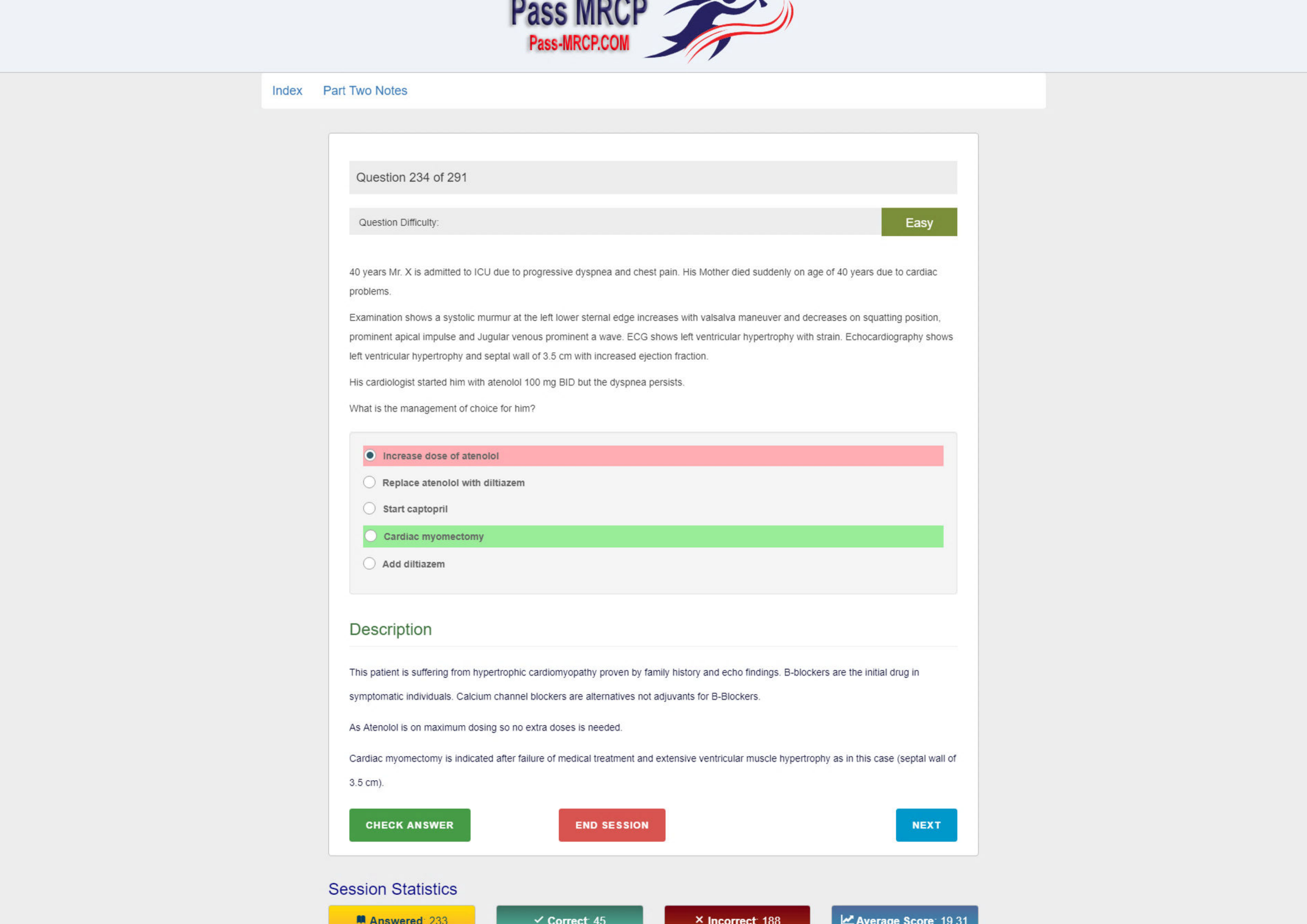
- ○ Vasovagal syncope
- ○ Alcoholic cardiomyopathy
- ● Hypertrophic cardiomyopathy
- ○ Aortic stenosis
- ○ Stable angina

Description

This young age male complaints and physical findings are compatible with the hypertrophic cardiomyopathy as a diagnosis. Familial HCM occurs is an autosomal dominant disease in approximately 50% of cases.

It is usually asymptomatic until the patient develops symptoms which include dyspnea, angina, syncope due to arrhythmias, heart failure and sudden death especially in young ages.

Two-dimensional (2-D) echocardiography shows mitral regurgitation, systolic anterior motion of the anterior mitral valve leaflet, asymmetric hypertrophy and septal hypertrophy.



Question 234 of 291

Question Difficulty: Easy

40 years Mr. X is admitted to ICU due to progressive dyspnea and chest pain. His Mother died suddenly on age of 40 years due to cardiac problems.

Examination shows a systolic murmur at the left lower sternal edge increases with valsalva maneuver and decreases on squatting position, prominent apical impulse and Jugular venous prominent a wave. ECG shows left ventricular hypertrophy with strain. Echocardiography shows left ventricular hypertrophy and septal wall of 3.5 cm with increased ejection fraction.

His cardiologist started him with atenolol 100 mg BID but the dyspnea persists.

What is the management of choice for him?

- ● Increase dose of atenolol
- ○ Replace atenolol with diltiazem
- ○ Start captopril
- ○ Cardiac myomectomy
- ○ Add diltiazem

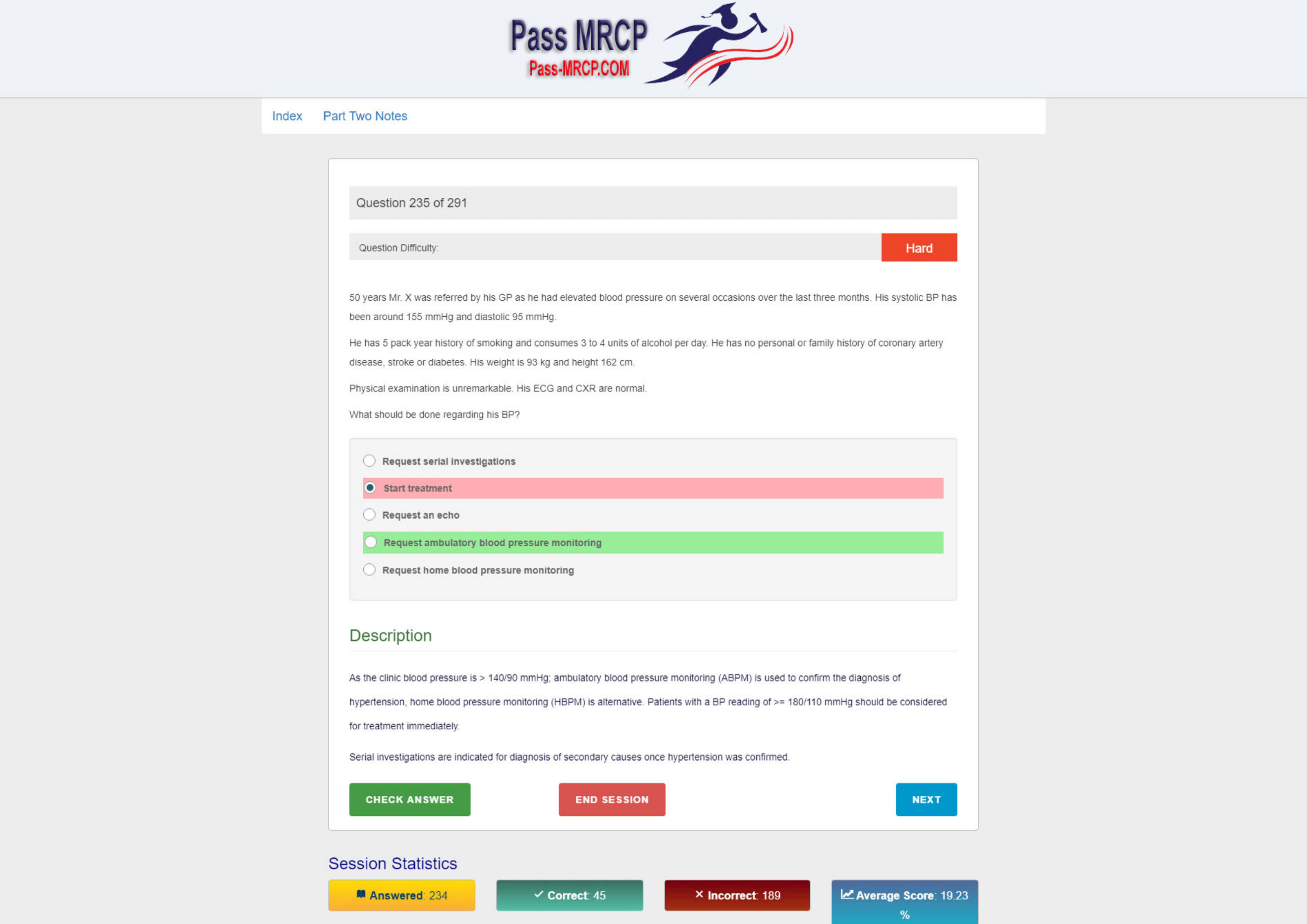
Description

This patient is suffering from hypertrophic cardiomyopathy proven by family history and echo findings. B-blockers are the initial drug in symptomatic individuals. Calcium channel blockers are alternatives not adjuvants for B-Blockers.

As Atenolol is on maximum dosing so no extra doses is needed.

Cardiac myomectomy is indicated after failure of medical treatment and extensive ventricular muscle hypertrophy as in this case (septal wall of 3.5 cm).

Session Statistics



Question 235 of 291

Question Difficulty: Hard

50 years Mr. X was referred by his GP as he had elevated blood pressure on several occasions over the last three months. His systolic BP has been around 155 mmHg and diastolic 95 mmHg.

He has 5 pack year history of smoking and consumes 3 to 4 units of alcohol per day. He has no personal or family history of coronary artery disease, stroke or diabetes. His weight is 93 kg and height 162 cm.

Physical examination is unremarkable. His ECG and CXR are normal.

What should be done regarding his BP?

- ○ Request serial investigations
- ● Start treatment
- ○ Request an echo
- ○ Request ambulatory blood pressure monitoring
- ○ Request home blood pressure monitoring

Description

As the clinic blood pressure is > 140/90 mmHg; ambulatory blood pressure monitoring (ABPM) is used to confirm the diagnosis of hypertension, home blood pressure monitoring (HBPM) is alternative. Patients with a BP reading of >= 180/110 mmHg should be considered for treatment immediately.

Serial investigations are indicated for diagnosis of secondary causes once hypertension was confirmed.

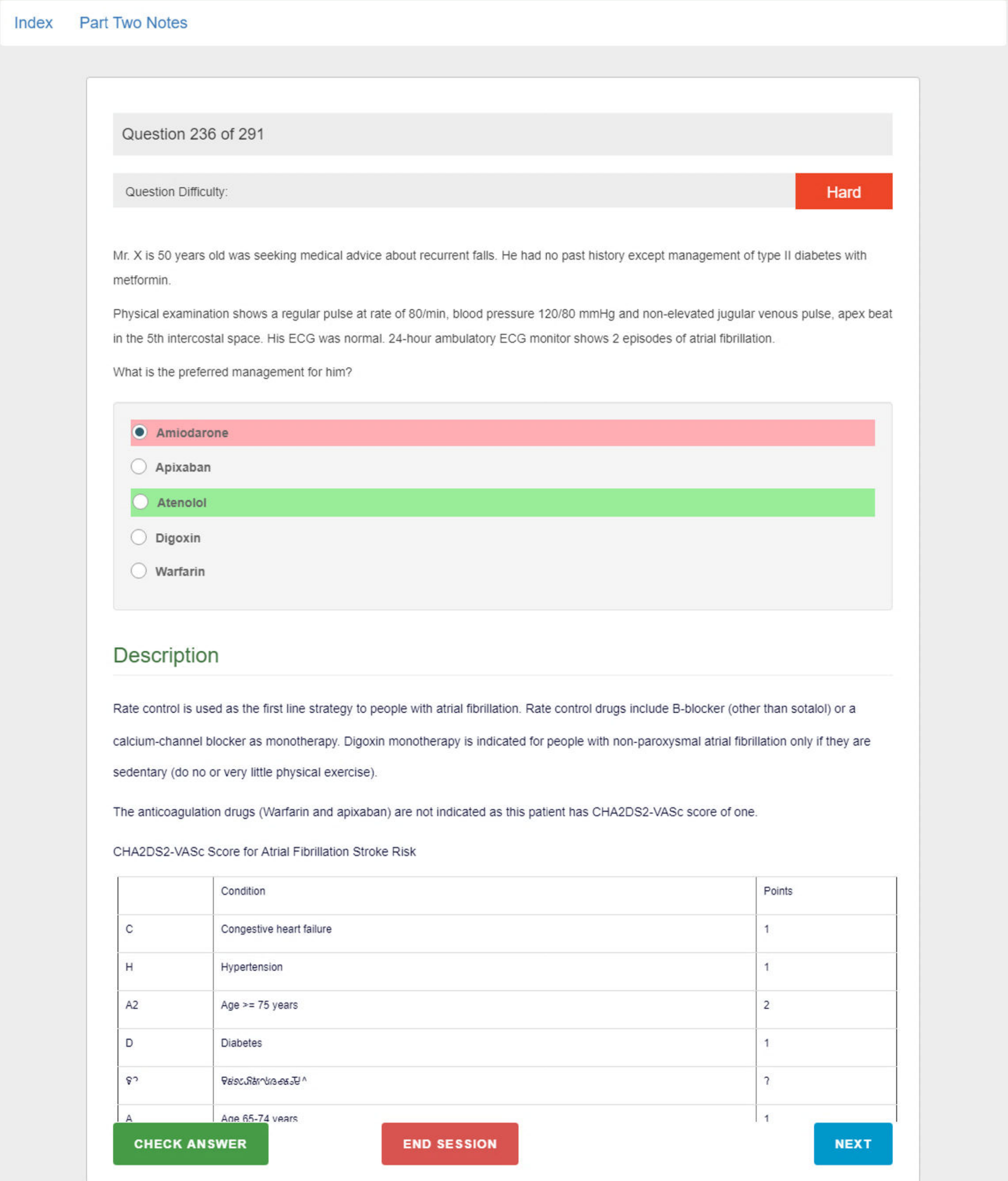
Session Statistics

Answered: 234

✓ Correct: 45

✕ Incorrect: 189

Average Score: 19.23 %



Question 236 of 291

Question Difficulty: **Hard**

Mr. X is 50 years old was seeking medical advice about recurrent falls. He had no past history except management of type II diabetes with metformin.

Physical examination shows a regular pulse at rate of 80/min, blood pressure 120/80 mmHg and non-elevated jugular venous pulse, apex beat in the 5th intercostal space. His ECG was normal. 24-hour ambulatory ECG monitor shows 2 episodes of atrial fibrillation.

What is the preferred management for him?

- ● **Amiodarone**
- ○ **Apixaban**
- ○ **Atenolol**
- ○ **Digoxin**
- ○ **Warfarin**

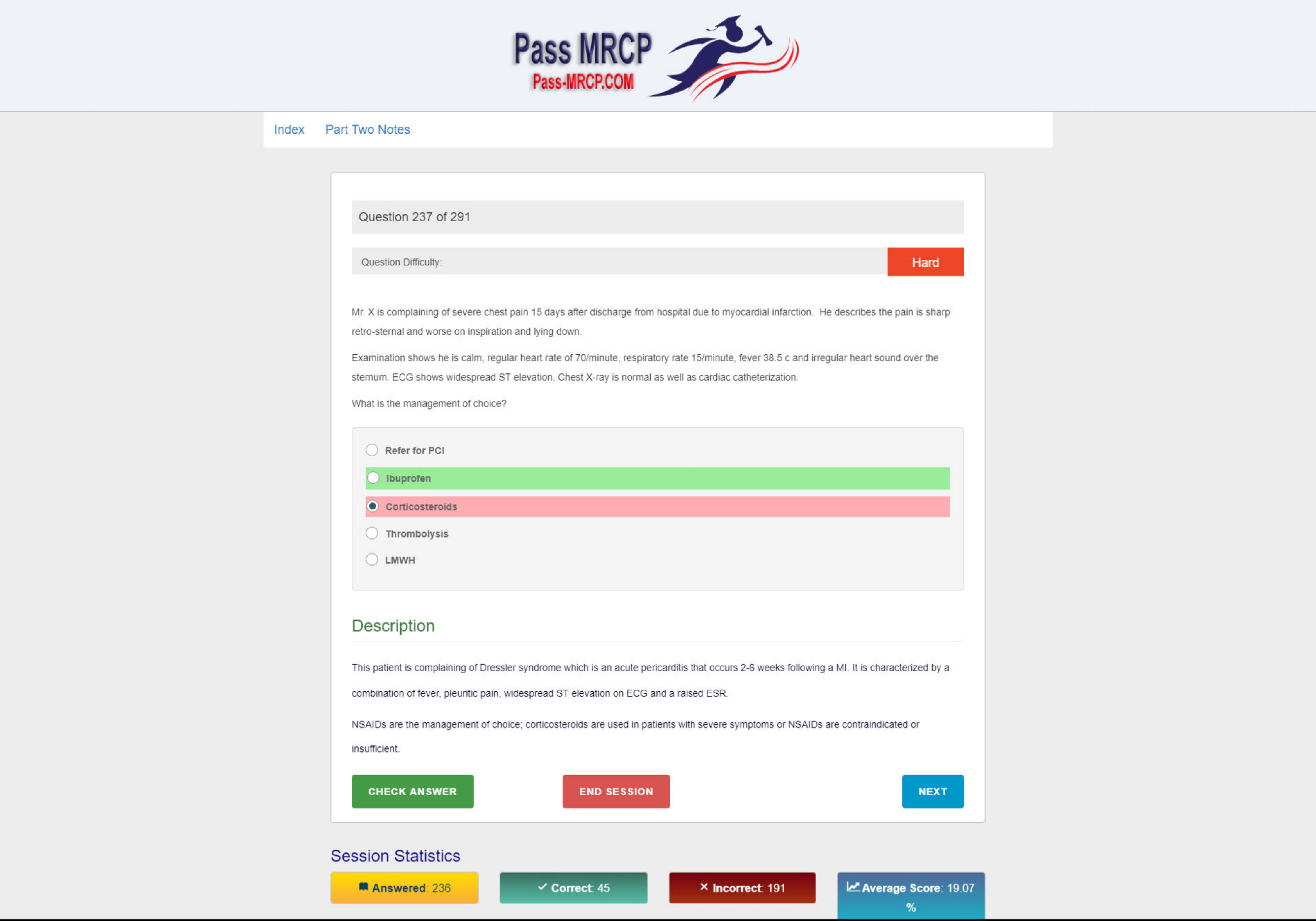
Description

Rate control is used as the first line strategy to people with atrial fibrillation. Rate control drugs include B-blocker (other than sotalol) or a calcium-channel blocker as monotherapy. Digoxin monotherapy is indicated for people with non-paroxysmal atrial fibrillation only if they are sedentary (do no or very little physical exercise).

The anticoagulation drugs (Warfarin and apixaban) are not indicated as this patient has CHA2DS2-VASc score of one.

CHA2DS2-VASc Score for Atrial Fibrillation Stroke Risk

	Condition	Points
C	Congestive heart failure	1
H	Hypertension	1
A2	Age >= 75 years	2
D	Diabetes	1
[illegible]	[illegible]	?
A	Age 65-74 years	1



Question 237 of 291

Question Difficulty: **Hard**

Mr. X is complaining of severe chest pain 15 days after discharge from hospital due to myocardial infarction. He describes the pain is sharp retro-sternal and worse on inspiration and lying down.

Examination shows he is calm, regular heart rate of 70/minute, respiratory rate 15/minute, fever 38.5 c and irregular heart sound over the sternum. ECG shows widespread ST elevation. Chest X-ray is normal as well as cardiac catheterization.

What is the management of choice?

- ○ **Refer for PCI**
- ○ **Ibuprofen**
- ● **Corticosteroids**
- ○ **Thrombolysis**
- ○ **LMWH**

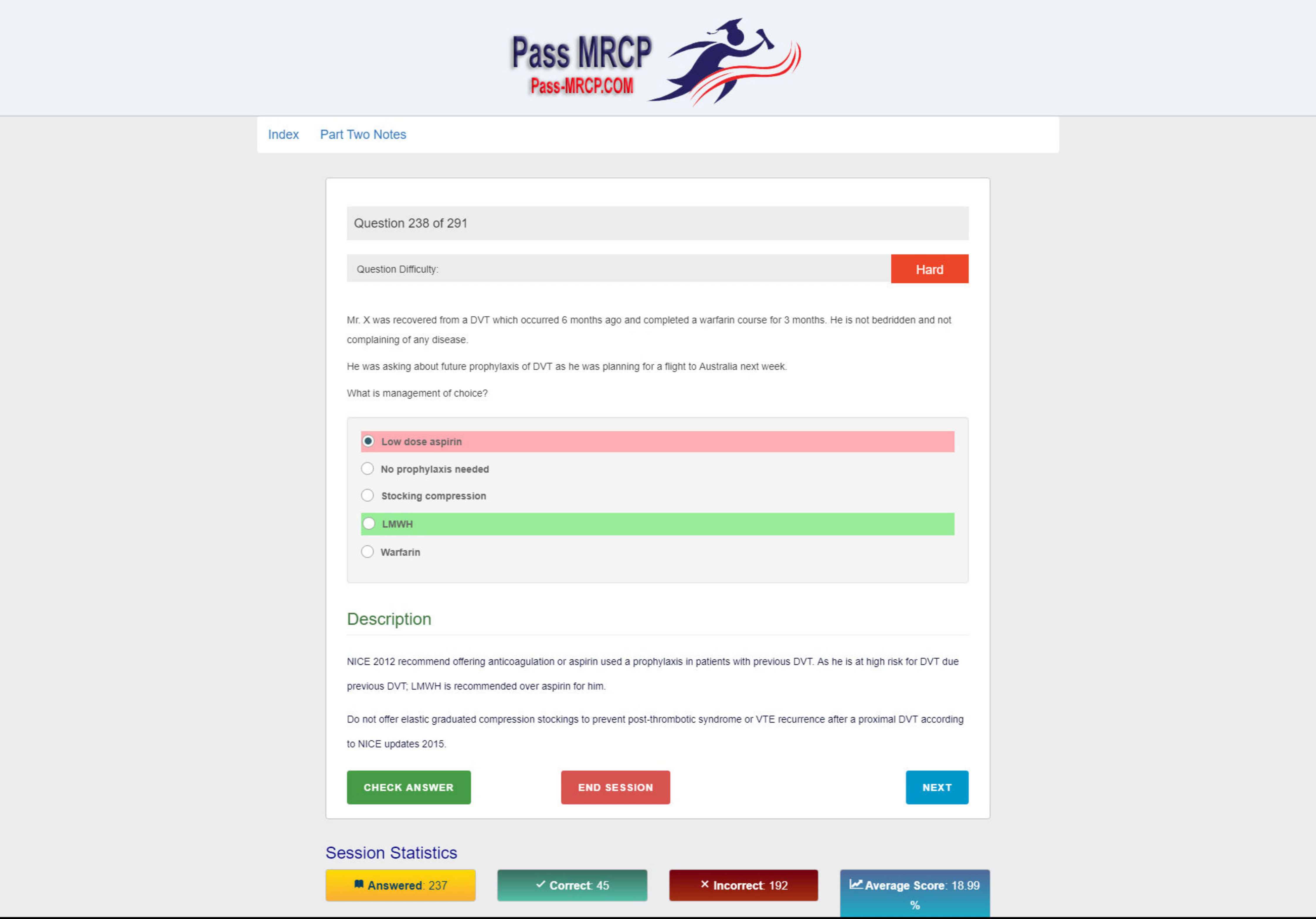
Description

This patient is complaining of Dressler syndrome which is an acute pericarditis that occurs 2-6 weeks following a MI. It is characterized by a combination of fever, pleuritic pain, widespread ST elevation on ECG and a raised ESR.

NSAIDs are the management of choice; corticosteroids are used in patients with severe symptoms or NSAIDs are contraindicated or insufficient.

Session Statistics

Answered: 236 **Correct**: 45 **Incorrect**: 191 **Average Score**: 19.07 %



Question 238 of 291

Question Difficulty: Hard

Mr. X was recovered from a DVT which occurred 6 months ago and completed a warfarin course for 3 months. He is not bedridden and not complaining of any disease.

He was asking about future prophylaxis of DVT as he was planning for a flight to Australia next week.

What is management of choice?

- ● Low dose aspirin
- ○ No prophylaxis needed
- ○ Stocking compression
- ○ LMWH
- ○ Warfarin

Description

NICE 2012 recommend offering anticoagulation or aspirin used a prophylaxis in patients with previous DVT. As he is at high risk for DVT due previous DVT; LMWH is recommended over aspirin for him.

Do not offer elastic graduated compression stockings to prevent post-thrombotic syndrome or VTE recurrence after a proximal DVT according to NICE updates 2015.

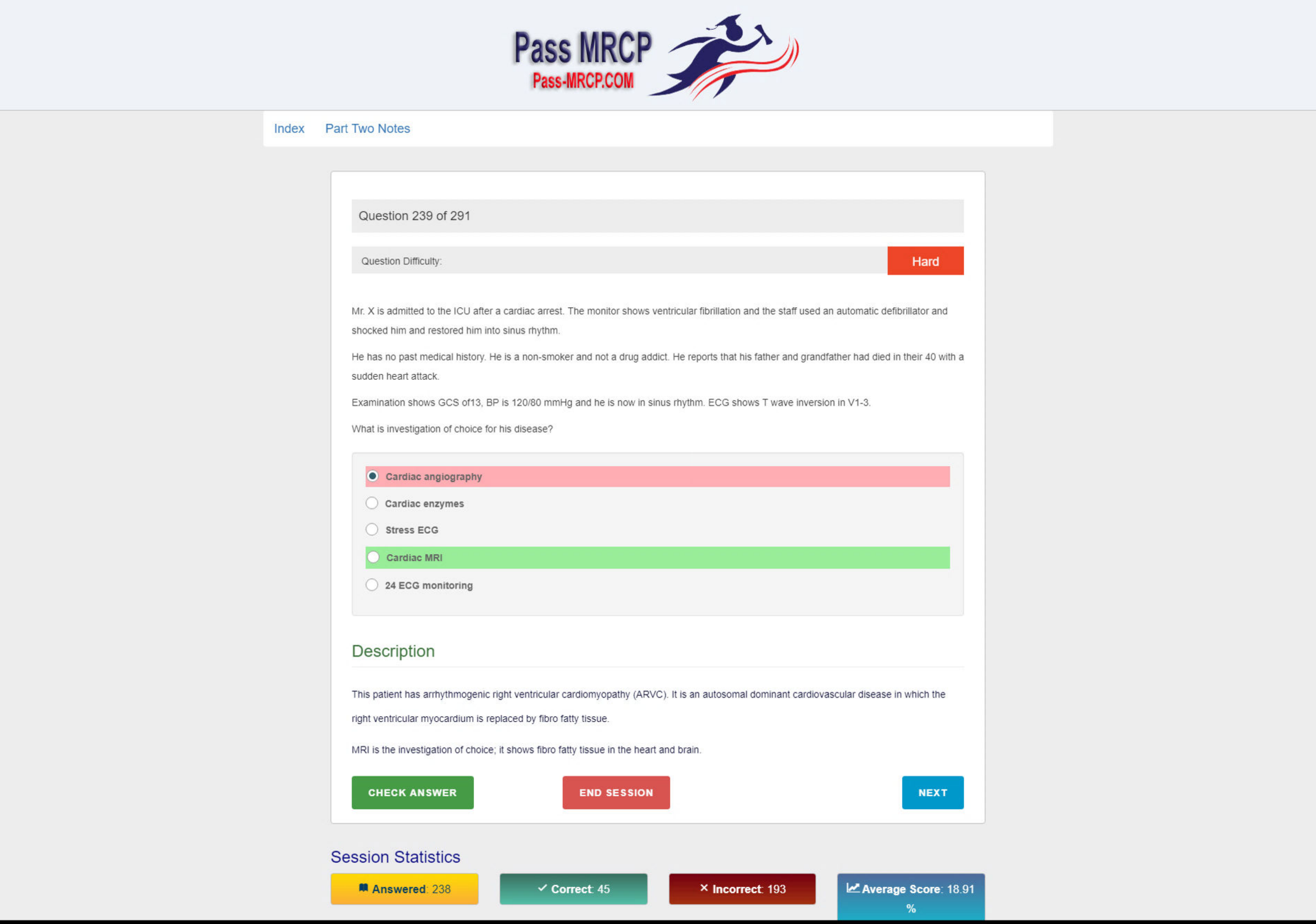
Session Statistics

Answered: 237

✓ **Correct**: 45

× **Incorrect**: 192

Average Score: 18.99 %



Question 239 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the ICU after a cardiac arrest. The monitor shows ventricular fibrillation and the staff used an automatic defibrillator and shocked him and restored him into sinus rhythm.

He has no past medical history. He is a non-smoker and not a drug addict. He reports that his father and grandfather had died in their 40 with a sudden heart attack.

Examination shows GCS of13, BP is 120/80 mmHg and he is now in sinus rhythm. ECG shows T wave inversion in V1-3.

What is investigation of choice for his disease?

● **Cardiac angiography**
○ **Cardiac enzymes**
○ **Stress ECG**
○ **Cardiac MRI**
○ **24 ECG monitoring**

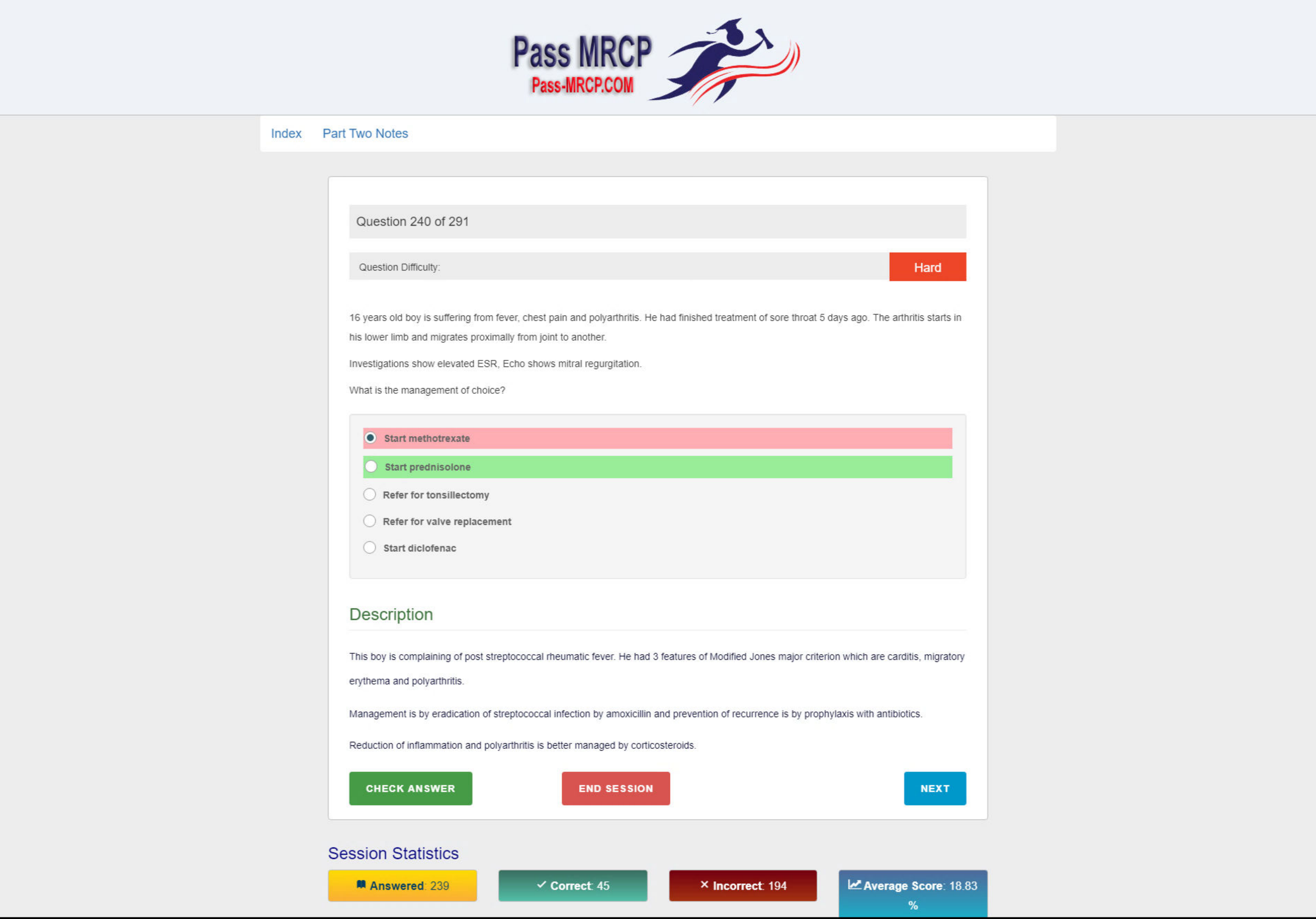
Description

This patient has arrhythmogenic right ventricular cardiomyopathy (ARVC). It is an autosomal dominant cardiovascular disease in which the right ventricular myocardium is replaced by fibro fatty tissue.

MRI is the investigation of choice; it shows fibro fatty tissue in the heart and brain.

Session Statistics

Answered: 238
✓ **Correct**: 45
✕ **Incorrect**: 193
Average Score: 18.91 %



Question 240 of 291

Question Difficulty: **Hard**

16 years old boy is suffering from fever, chest pain and polyarthritis. He had finished treatment of sore throat 5 days ago. The arthritis starts in his lower limb and migrates proximally from joint to another.

Investigations show elevated ESR, Echo shows mitral regurgitation.

What is the management of choice?

- ● **Start methotrexate**
- ○ **Start prednisolone**
- ○ **Refer for tonsillectomy**
- ○ **Refer for valve replacement**
- ○ **Start diclofenac**

Description

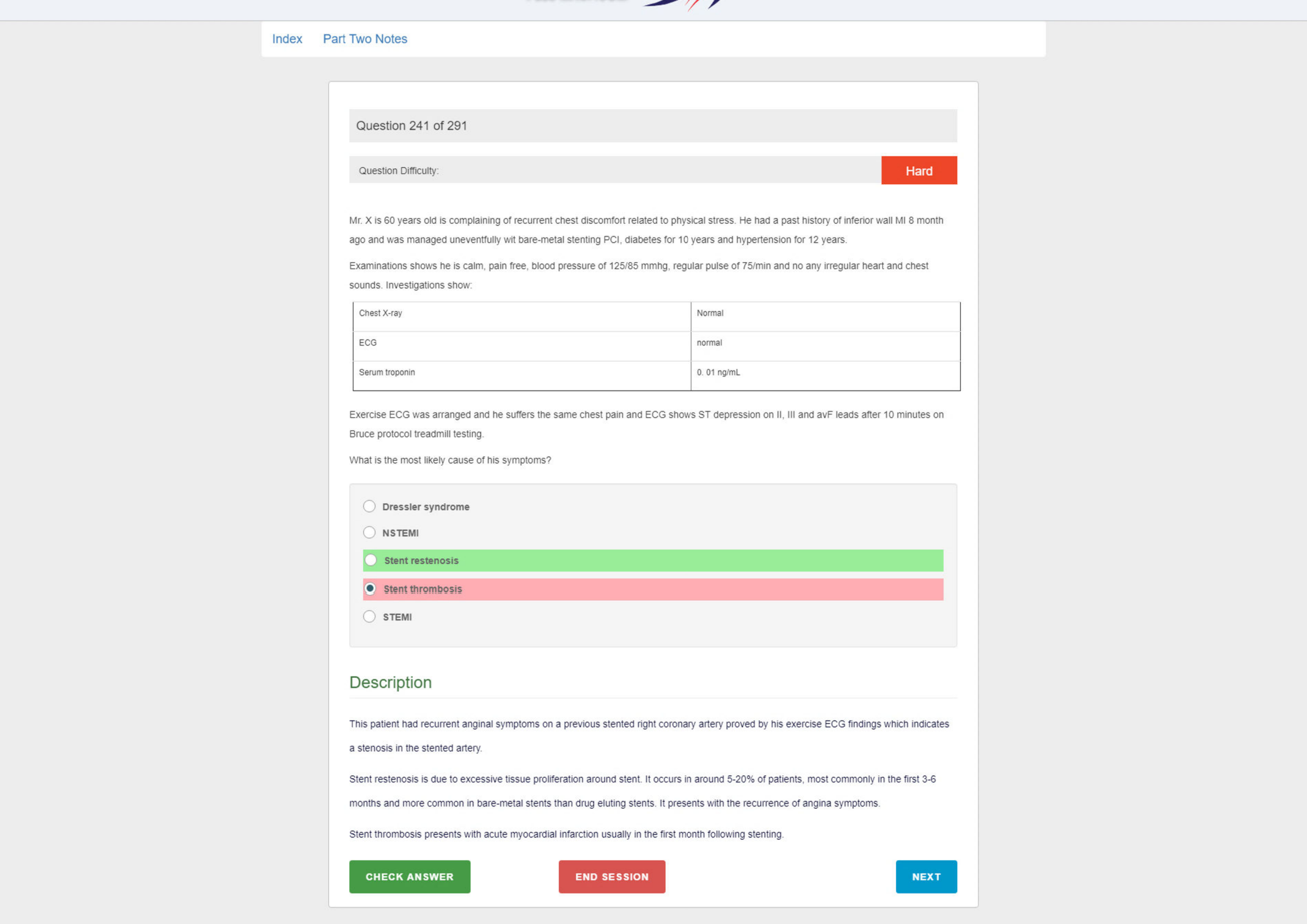
This boy is complaining of post streptococcal rheumatic fever. He had 3 features of Modified Jones major criterion which are carditis, migratory erythema and polyarthritis.

Management is by eradication of streptococcal infection by amoxicillin and prevention of recurrence is by prophylaxis with antibiotics.

Reduction of inflammation and polyarthritis is better managed by corticosteroids.

Session Statistics

Answered: 239
✓ **Correct**: 45
✕ **Incorrect**: 194
Average Score: 18.83 %



Question 241 of 291

Question Difficulty: **Hard**

Mr. X is 60 years old is complaining of recurrent chest discomfort related to physical stress. He had a past history of inferior wall MI 8 month ago and was managed uneventfully wit bare-metal stenting PCI, diabetes for 10 years and hypertension for 12 years.

Examinations shows he is calm, pain free, blood pressure of 125/85 mmhg, regular pulse of 75/min and no any irregular heart and chest sounds. Investigations show:

Chest X-ray	Normal
ECG	normal
Serum troponin	0. 01 ng/mL

Exercise ECG was arranged and he suffers the same chest pain and ECG shows ST depression on II, III and avF leads after 10 minutes on Bruce protocol treadmill testing.

What is the most likely cause of his symptoms?

- ○ **Dressler syndrome**
- ○ **NSTEMI**
- ○ **Stent restenosis**
- ● **Stent thrombosis**
- ○ **STEMI**

Description

This patient had recurrent anginal symptoms on a previous stented right coronary artery proved by his exercise ECG findings which indicates a stenosis in the stented artery.

Stent restenosis is due to excessive tissue proliferation around stent. It occurs in around 5-20% of patients, most commonly in the first 3-6 months and more common in bare-metal stents than drug eluting stents. It presents with the recurrence of angina symptoms.

Stent thrombosis presents with acute myocardial infarction usually in the first month following stenting.

Question 242 of 291

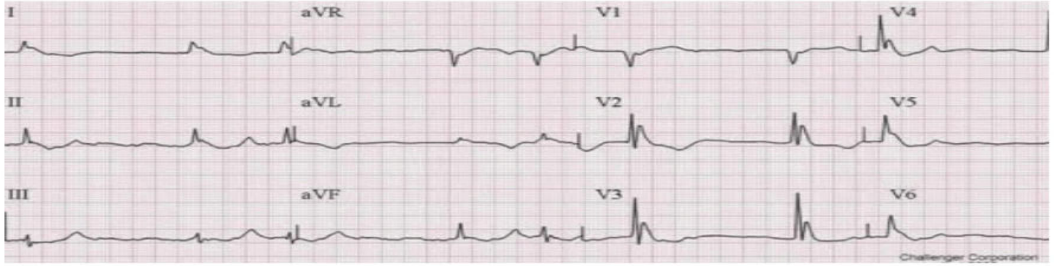
Question Difficulty: **Hard**

Homeless Mr. X was admitted to the emergency department as he has been found collapsed on the street.

Examination shows he is unconscious with a pulse rate of 50/min and a blood pressure of 110/70 mmHg. Pupils are equal and reactive and the tone is normal in all four limbs.

ECG was shown in the image. Other investigations show:

Serum sodium	136 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	102 mmol/L	(95-105 mmol/L)
Serum bicarbonate	21 mmol/L	(22-28 mmol/L)
Serum magnesium	1.4 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.0 mmol/L	(2.1-2.8 mmol/L)



What is the most likely diagnosis?

- ○ **Hypokalemia**
- ○ **Alcohol intoxication**
- ○ **Hyperthermia**
- ● **Hypothermia**
- ○ **Intracranial hemorrhage**

Description

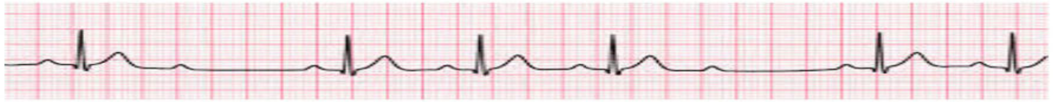
The ECG shows prolonged QT interval with positive deflection at the J point in all leads except I and V1 which represents J wave which is a sign of hypothermia.

Hypokalemia can cause prolonged QT but it is not severe to cause it.

Question 243 of 291

Question Difficulty: **Hard**

Mr. X seeks medical advice about sensing of a dropped heartbeat. It was started 10 days ago and regularly occurs every minute. His ECG is shown in the image



What is the diagnosis?

- ● **Complete heart block**
- ○ **Sinus pause**
- ○ **Mobitz type II AV block**
- ○ **First-degree AV block**
- ○ **Mobitz type I AV block**

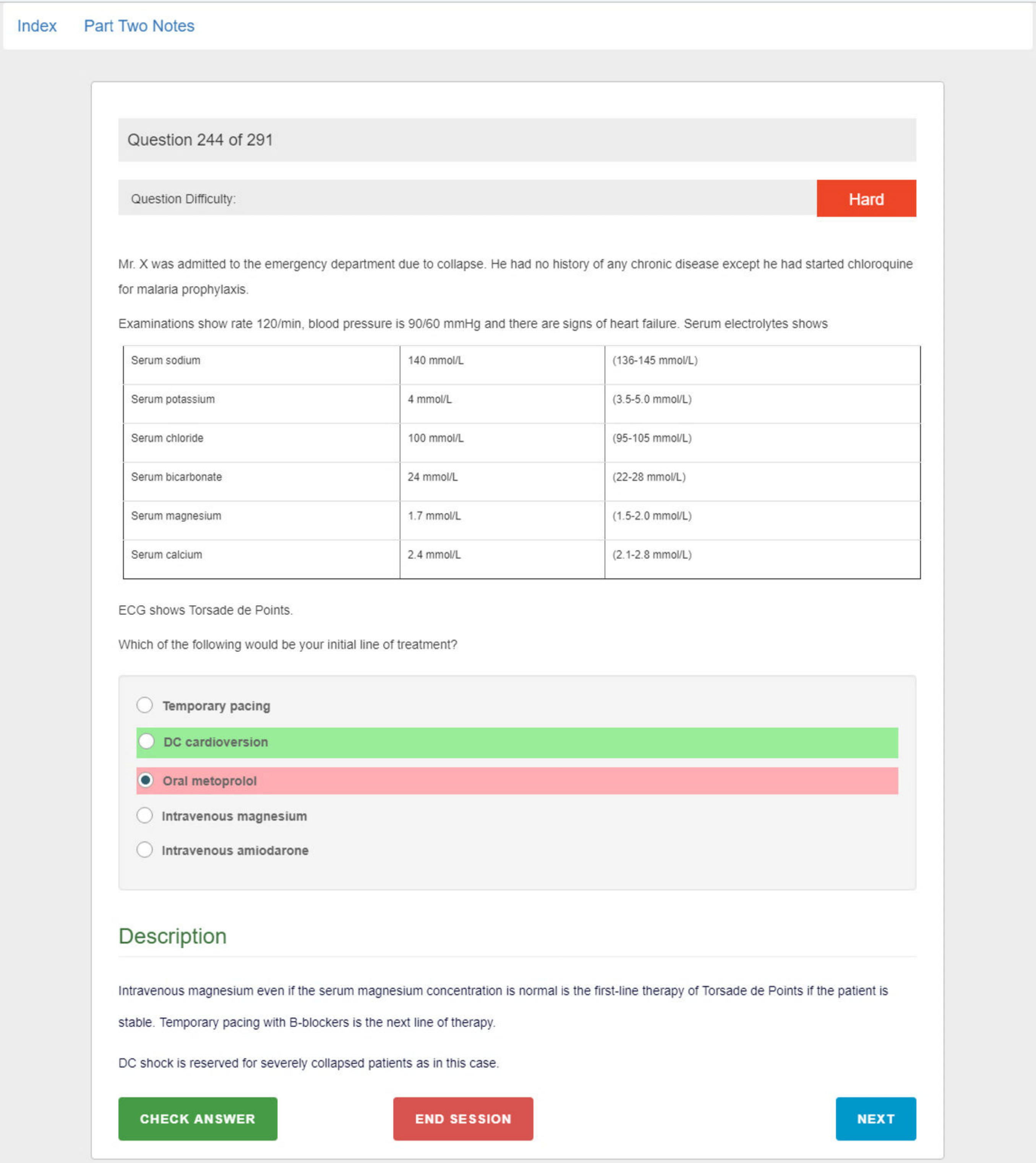
Description

Atrioventricular Block is categorized in to:

- First-degree AV (PR interval > 0.21 second with all atrial impulses conducted)
- Second-degree block is sub-classified in to:
    - Mobitz type I (Wenckebach) AV, the PR interval progressively lengthens, with the RR interval shortening, before the blocked beat.
    - Mobitz type II AV block, there are intermittently non conducted atrial beats not preceded by lengthening AV conduction.
- Complete (third-degree) heart block: Transmission of atrial impulses through the AV node is completely blocked The QRS is wide and the ventricular rate is slower, usually < 50 beats/min

CHECK ANSWER END SESSION NEXT

Session Statistics



Question 244 of 291

Question Difficulty: Hard

Mr. X was admitted to the emergency department due to collapse. He had no history of any chronic disease except he had started chloroquine for malaria prophylaxis.

Examinations show rate 120/min, blood pressure is 90/60 mmHg and there are signs of heart failure. Serum electrolytes shows

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	100 mmol/L	(95-105 mmol/L)
Serum bicarbonate	24 mmol/L	(22-28 mmol/L)
Serum magnesium	1.7 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.4 mmol/L	(2.1-2.8 mmol/L)

ECG shows Torsade de Points.

Which of the following would be your initial line of treatment?

- ○ **Temporary pacing**
- ○ **DC cardioversion**
- ● **Oral metoprolol**
- ○ **Intravenous magnesium**
- ○ **Intravenous amiodarone**

Description

Intravenous magnesium even if the serum magnesium concentration is normal is the first-line therapy of Torsade de Points if the patient is stable. Temporary pacing with B-blockers is the next line of therapy.

DC shock is reserved for severely collapsed patients as in this case.

Question 245 of 291

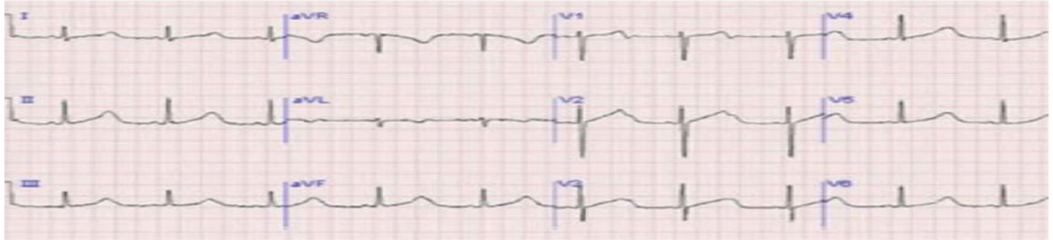
Question Difficulty: **Hard**

Mr. X was admitted to the ED after collapsing. He had 2 previous cardiac arrests. The previous week he had begun a course of clarithromycin for a chest infection.

Examination shows temperature 37 C, blood pressure is 110/70 mmHg and pulse 70/min. Cardiovascular, respiratory, nervous and abdominal examinations are all normal. Serum electrolytes show:

Serum sodium	137 mmol/L	(136-145 mmol/L)
Serum potassium	4 mmol/L	(3.5-5.0 mmol/L)
Serum magnesium	1.6 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)

ECG is shown in the image.

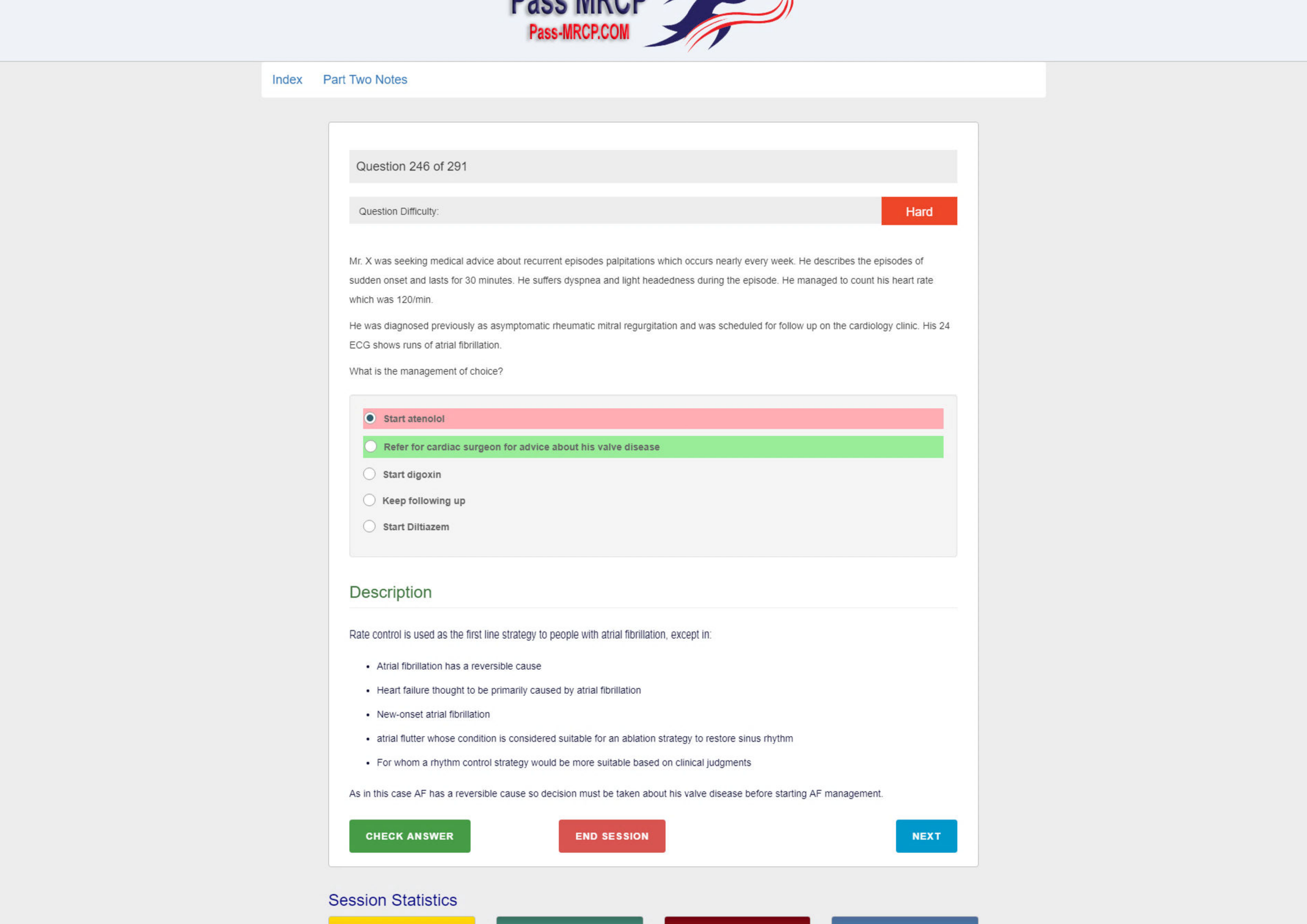


What is the most likely diagnosis?

- ○ **Atrial fibrillation**
- ○ **Long QT Syndrome**
- ● **Brugada syndrome**
- ○ **Heart block**
- ○ **WPW syndrome**

Description

The ECG shows prolonged QT which is due ingestion of clarithromycin.



Question 246 of 291

Question Difficulty: Hard

Mr. X was seeking medical advice about recurrent episodes palpitations which occurs nearly every week. He describes the episodes of sudden onset and lasts for 30 minutes. He suffers dyspnea and light headedness during the episode. He managed to count his heart rate which was 120/min.

He was diagnosed previously as asymptomatic rheumatic mitral regurgitation and was scheduled for follow up on the cardiology clinic. His 24 ECG shows runs of atrial fibrillation.

What is the management of choice?

● **Start atenolol**

○ **Refer for cardiac surgeon for advice about his valve disease**

○ **Start digoxin**

○ **Keep following up**

○ **Start Diltiazem**

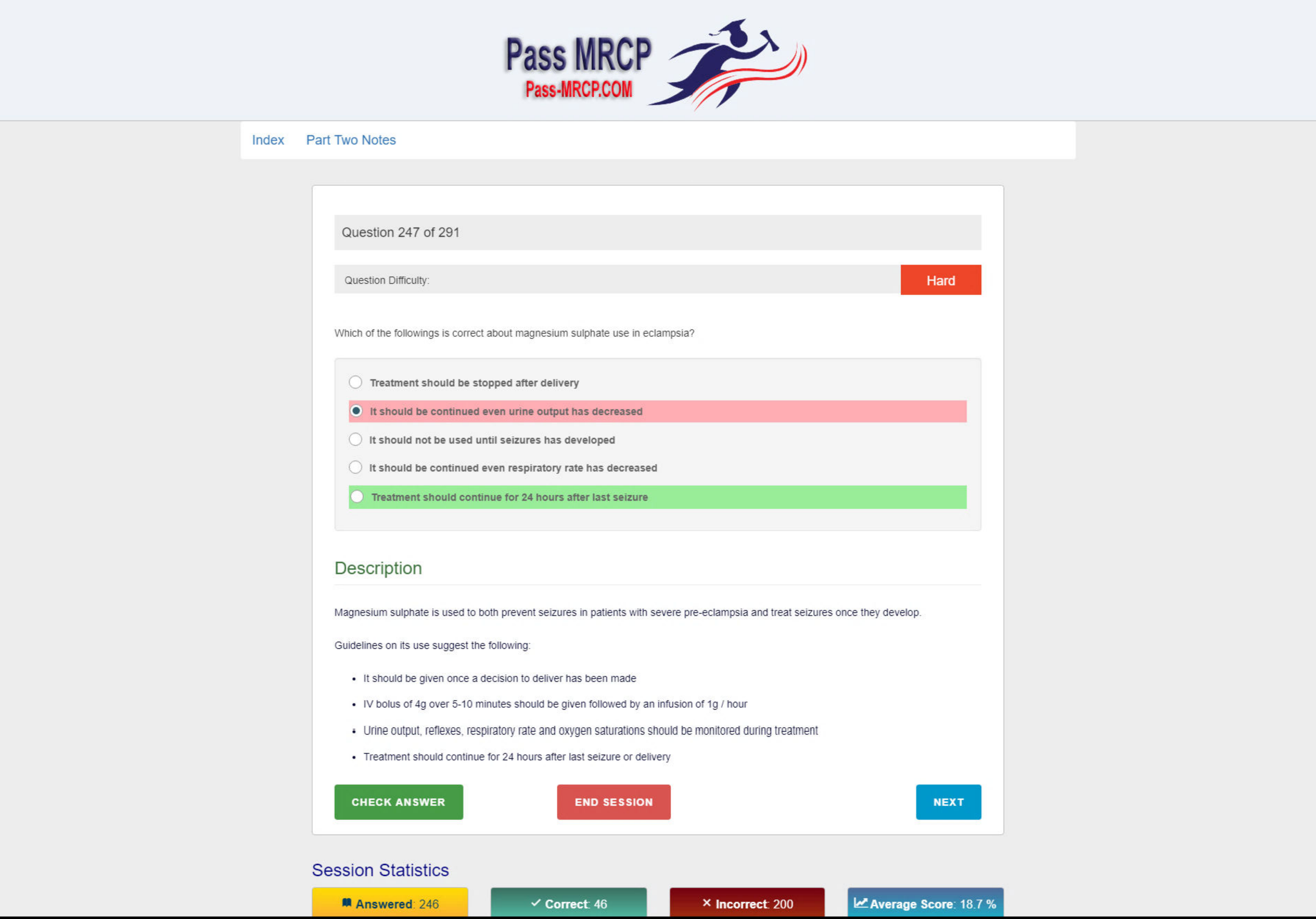
Description

Rate control is used as the first line strategy to people with atrial fibrillation, except in:

- Atrial fibrillation has a reversible cause
- Heart failure thought to be primarily caused by atrial fibrillation
- New-onset atrial fibrillation
- atrial flutter whose condition is considered suitable for an ablation strategy to restore sinus rhythm
- For whom a rhythm control strategy would be more suitable based on clinical judgments

As in this case AF has a reversible cause so decision must be taken about his valve disease before starting AF management.

Session Statistics



Question 247 of 291

Question Difficulty: Hard

Which of the followings is correct about magnesium sulphate use in eclampsia?

○ Treatment should be stopped after delivery

● It should be continued even urine output has decreased

○ It should not be used until seizures has developed

○ It should be continued even respiratory rate has decreased

○ Treatment should continue for 24 hours after last seizure

Description

Magnesium sulphate is used to both prevent seizures in patients with severe pre-eclampsia and treat seizures once they develop.

Guidelines on its use suggest the following:

- It should be given once a decision to deliver has been made
- IV bolus of 4g over 5-10 minutes should be given followed by an infusion of 1g / hour
- Urine output, reflexes, respiratory rate and oxygen saturations should be monitored during treatment
- Treatment should continue for 24 hours after last seizure or delivery

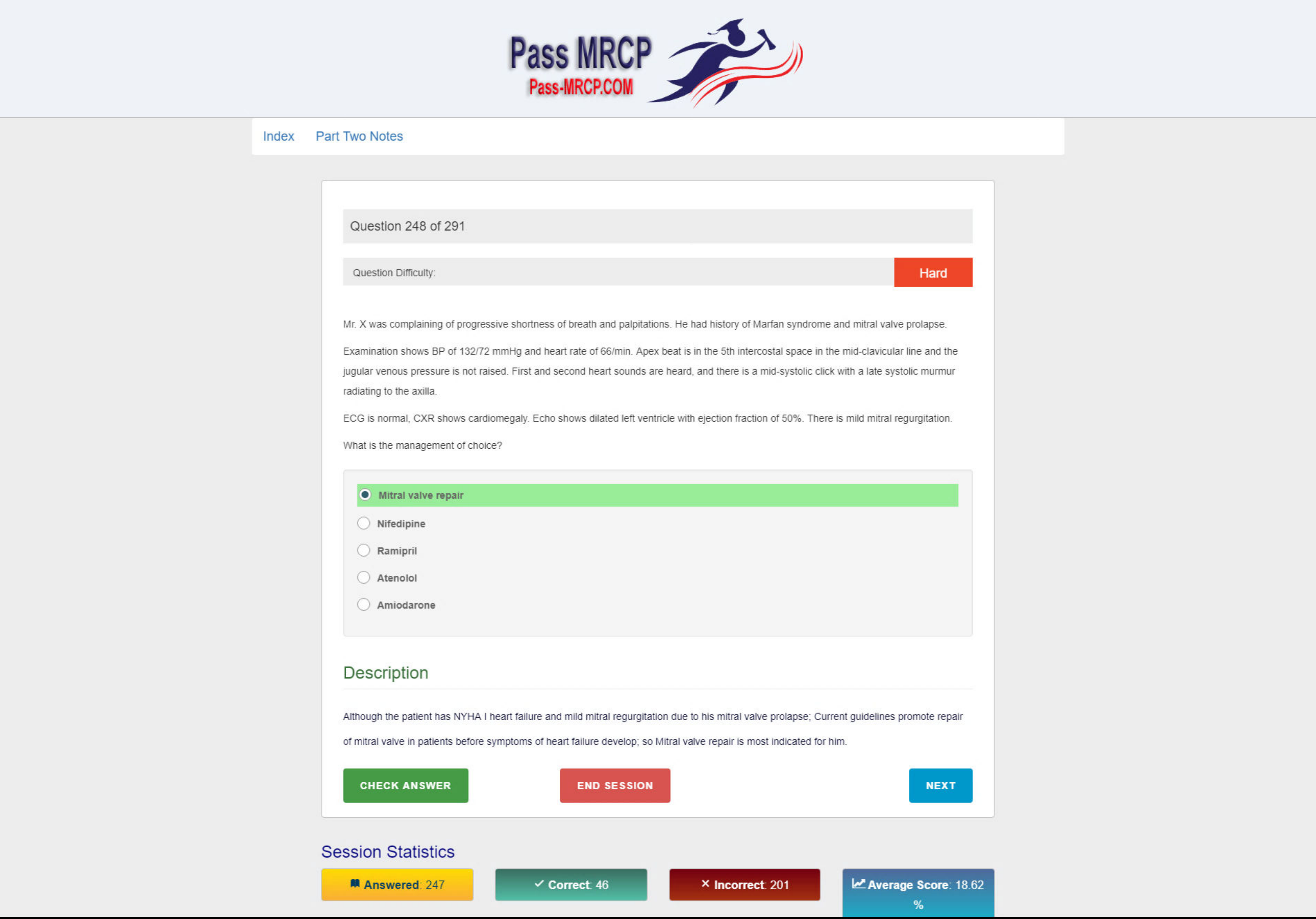
Session Statistics

Answered: 246

✓ **Correct**: 46

✕ **Incorrect**: 200

Average Score: 18.7 %



Question 248 of 291

Question Difficulty: **Hard**

Mr. X was complaining of progressive shortness of breath and palpitations. He had history of Marfan syndrome and mitral valve prolapse.

Examination shows BP of 132/72 mmHg and heart rate of 66/min. Apex beat is in the 5th intercostal space in the mid-clavicular line and the jugular venous pressure is not raised. First and second heart sounds are heard, and there is a mid-systolic click with a late systolic murmur radiating to the axilla.

ECG is normal, CXR shows cardiomegaly. Echo shows dilated left ventricle with ejection fraction of 50%. There is mild mitral regurgitation.

What is the management of choice?

- ● **Mitral valve repair**
- ○ **Nifedipine**
- ○ **Ramipril**
- ○ **Atenolol**
- ○ **Amiodarone**

Description

Although the patient has NYHA I heart failure and mild mitral regurgitation due to his mitral valve prolapse; Current guidelines promote repair of mitral valve in patients before symptoms of heart failure develop; so Mitral valve repair is most indicated for him.

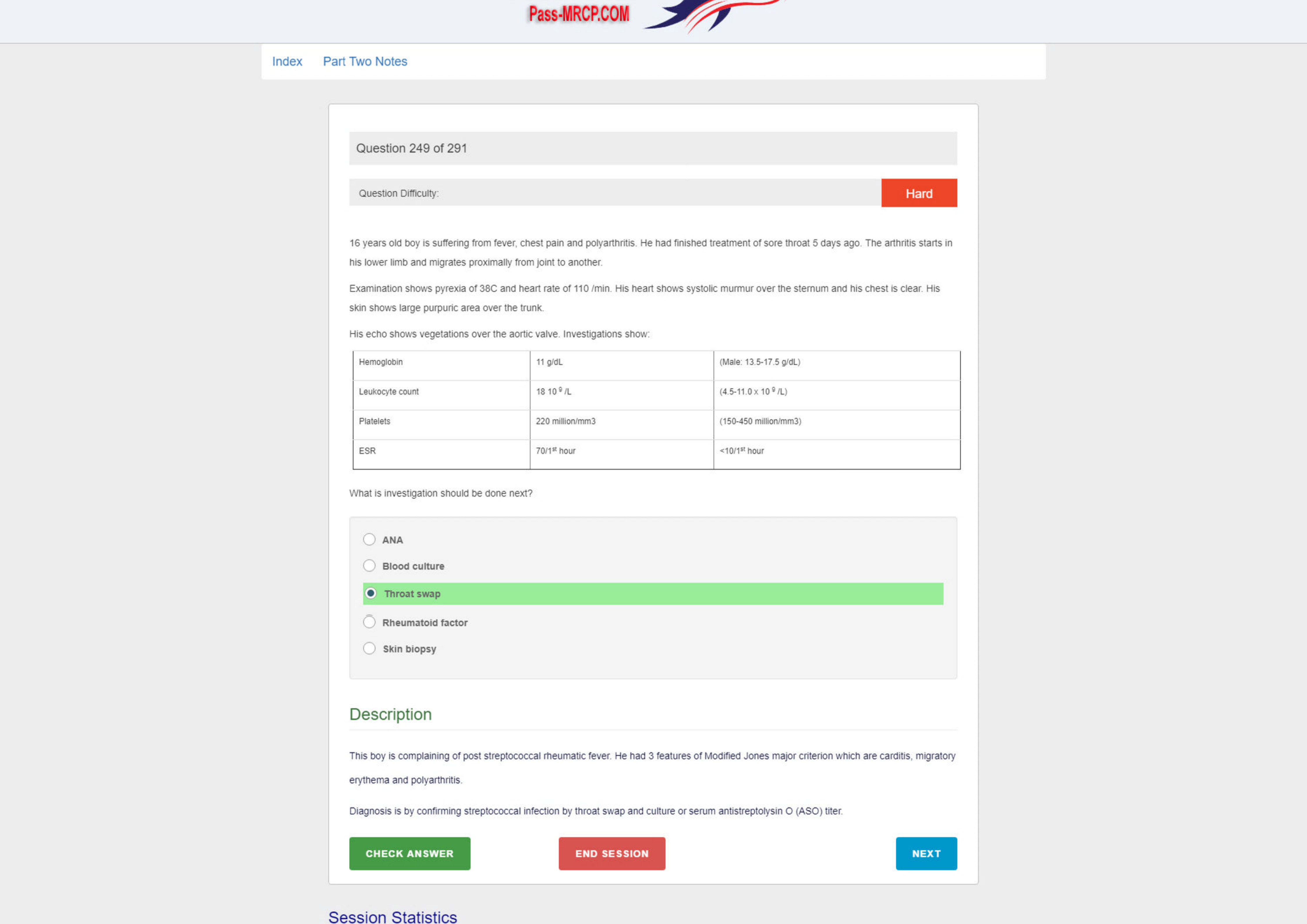
Session Statistics

Answered: 247

✓ **Correct**: 46

✕ **Incorrect**: 201

Average Score: 18.62 %



Question 249 of 291

Question Difficulty: Hard

16 years old boy is suffering from fever, chest pain and polyarthritis. He had finished treatment of sore throat 5 days ago. The arthritis starts in his lower limb and migrates proximally from joint to another.

Examination shows pyrexia of 38C and heart rate of 110 /min. His heart shows systolic murmur over the sternum and his chest is clear. His skin shows large purpuric area over the trunk.

His echo shows vegetations over the aortic valve. Investigations show:

Hemoglobin	11 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	18 10^9 /L	(4.5-11.0 x 10^9 /L)
Platelets	220 million/mm3	(150-450 million/mm3)
ESR	70/1st hour	<10/1st hour

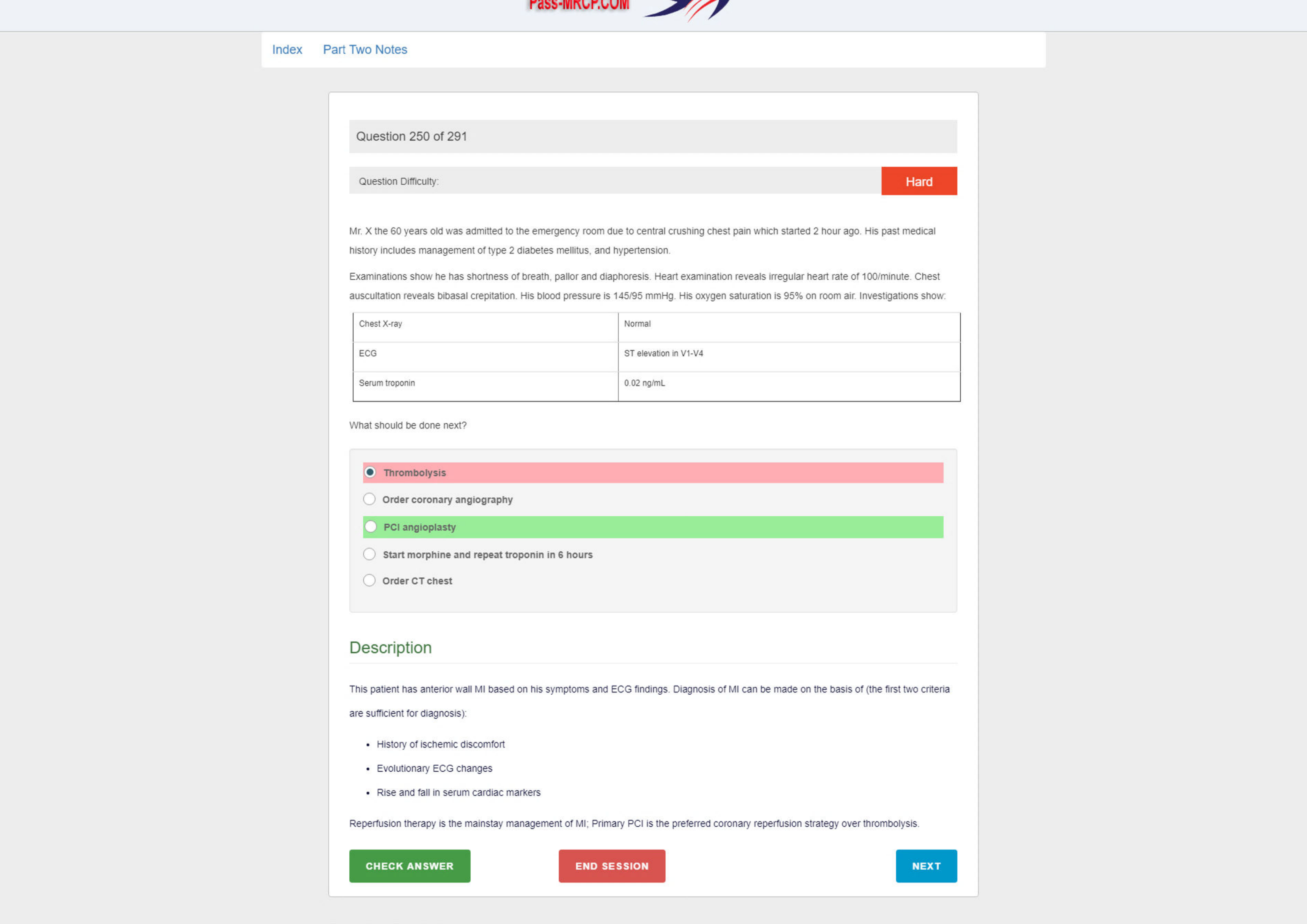
What is investigation should be done next?

- ○ ANA
- ○ Blood culture
- ● Throat swap
- ○ Rheumatoid factor
- ○ Skin biopsy

Description

This boy is complaining of post streptococcal rheumatic fever. He had 3 features of Modified Jones major criterion which are carditis, migratory erythema and polyarthritis.

Diagnosis is by confirming streptococcal infection by throat swap and culture or serum antistreptolysin O (ASO) titer.



Question 250 of 291

Question Difficulty: Hard

Mr. X the 60 years old was admitted to the emergency room due to central crushing chest pain which started 2 hour ago. His past medical history includes management of type 2 diabetes mellitus, and hypertension.

Examinations show he has shortness of breath, pallor and diaphoresis. Heart examination reveals irregular heart rate of 100/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 145/95 mmHg. His oxygen saturation is 95% on room air. Investigations show:

Chest X-ray	Normal
ECG	ST elevation in V1-V4
Serum troponin	0.02 ng/mL

What should be done next?

● **Thrombolysis**

○ **Order coronary angiography**

○ **PCI angioplasty**

○ **Start morphine and repeat troponin in 6 hours**

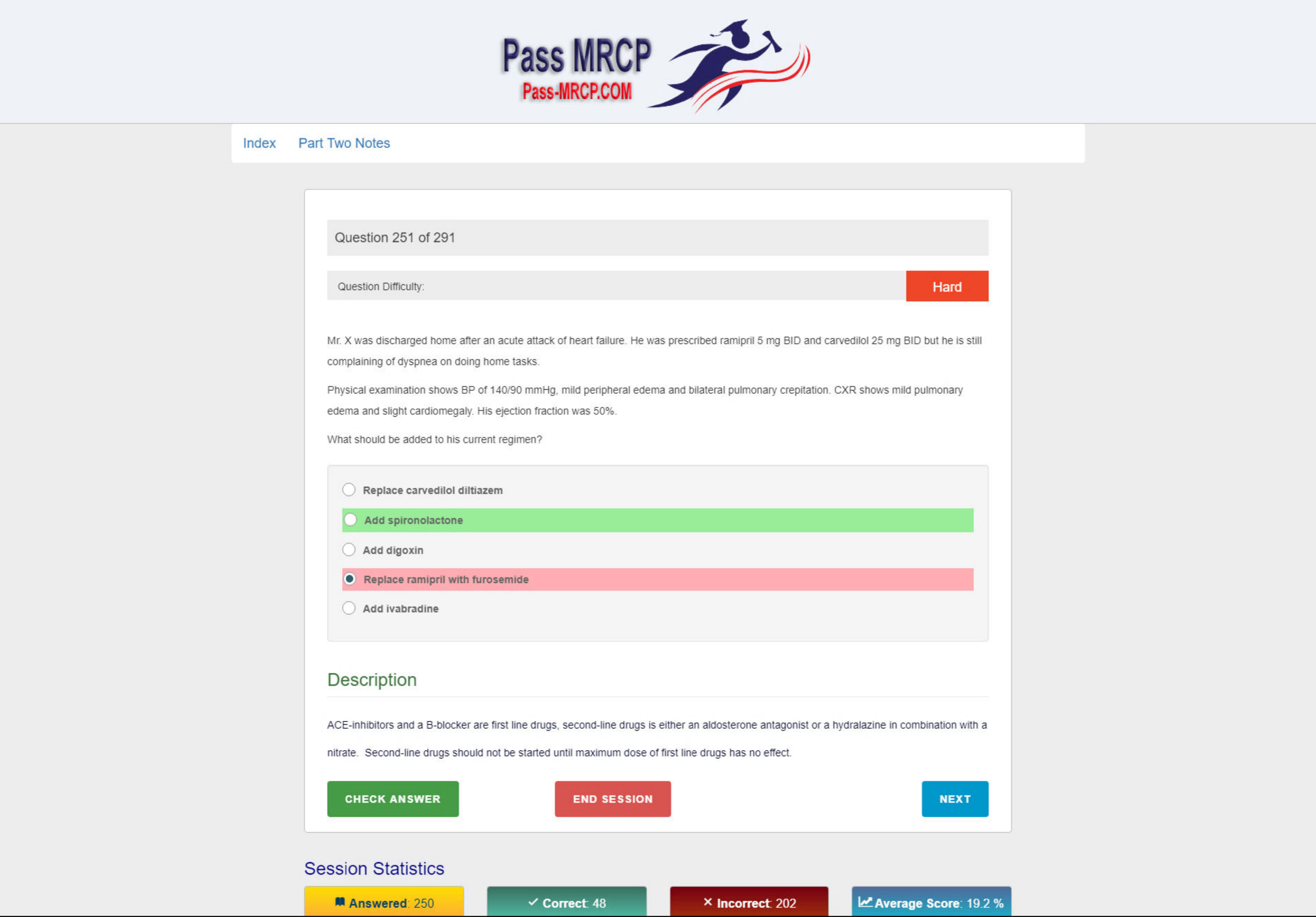
○ **Order CT chest**

Description

This patient has anterior wall MI based on his symptoms and ECG findings. Diagnosis of MI can be made on the basis of (the first two criteria are sufficient for diagnosis):

- History of ischemic discomfort
- Evolutionary ECG changes
- Rise and fall in serum cardiac markers

Reperfusion therapy is the mainstay management of MI; Primary PCI is the preferred coronary reperfusion strategy over thrombolysis.



Question 251 of 291

Question Difficulty: Hard

Mr. X was discharged home after an acute attack of heart failure. He was prescribed ramipril 5 mg BID and carvedilol 25 mg BID but he is still complaining of dyspnea on doing home tasks.

Physical examination shows BP of 140/90 mmHg, mild peripheral edema and bilateral pulmonary crepitation. CXR shows mild pulmonary edema and slight cardiomegaly. His ejection fraction was 50%.

What should be added to his current regimen?

- ○ **Replace carvedilol diltiazem**
- ○ **Add spironolactone**
- ○ **Add digoxin**
- ● **Replace ramipril with furosemide**
- ○ **Add ivabradine**

Description

ACE-inhibitors and a B-blocker are first line drugs, second-line drugs is either an aldosterone antagonist or a hydralazine in combination with a nitrate. Second-line drugs should not be started until maximum dose of first line drugs has no effect.

Session Statistics

Answered: 250

✓ **Correct**: 48

✕ **Incorrect**: 202

Average Score: 19.2 %

Question 252 of 291

Question Difficulty: **Hard**

30 years woman who is 35 weeks of pregnancy was admitted to ED due to epigastric pain, increasing ankle edema.

Examination shows BP was 160/95 mmhg. ECG is normal. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	103 µmol/L	(53-106 µmol/L)
Urine analysis	++ protein	

What is management of choice?

- ○ **Hospital admission with IV labetalol and betamethasone**
- ○ **IV labetalol and discharge**
- ● **Sublingual nifedipine**
- ○ **Hospital admission with IV Furosemide and BP monitoring**
- ○ **Hospital admission with immediate delivery**

What is management of choice?

- ○ **Hospital admission with IV labetalol and betamethasone**
- ○ **IV labetalol and discharge**
- ● **Sublingual nifedipine**
- ○ **Hospital admission with IV Furosemide and BP monitoring**
- ○ **Hospital admission with immediate delivery**

Description

Although this woman is complaining of moderate pre-eclampsia, NICE 2010 recommend offer birth to mild or moderate hypertension at 34-36 weeks.

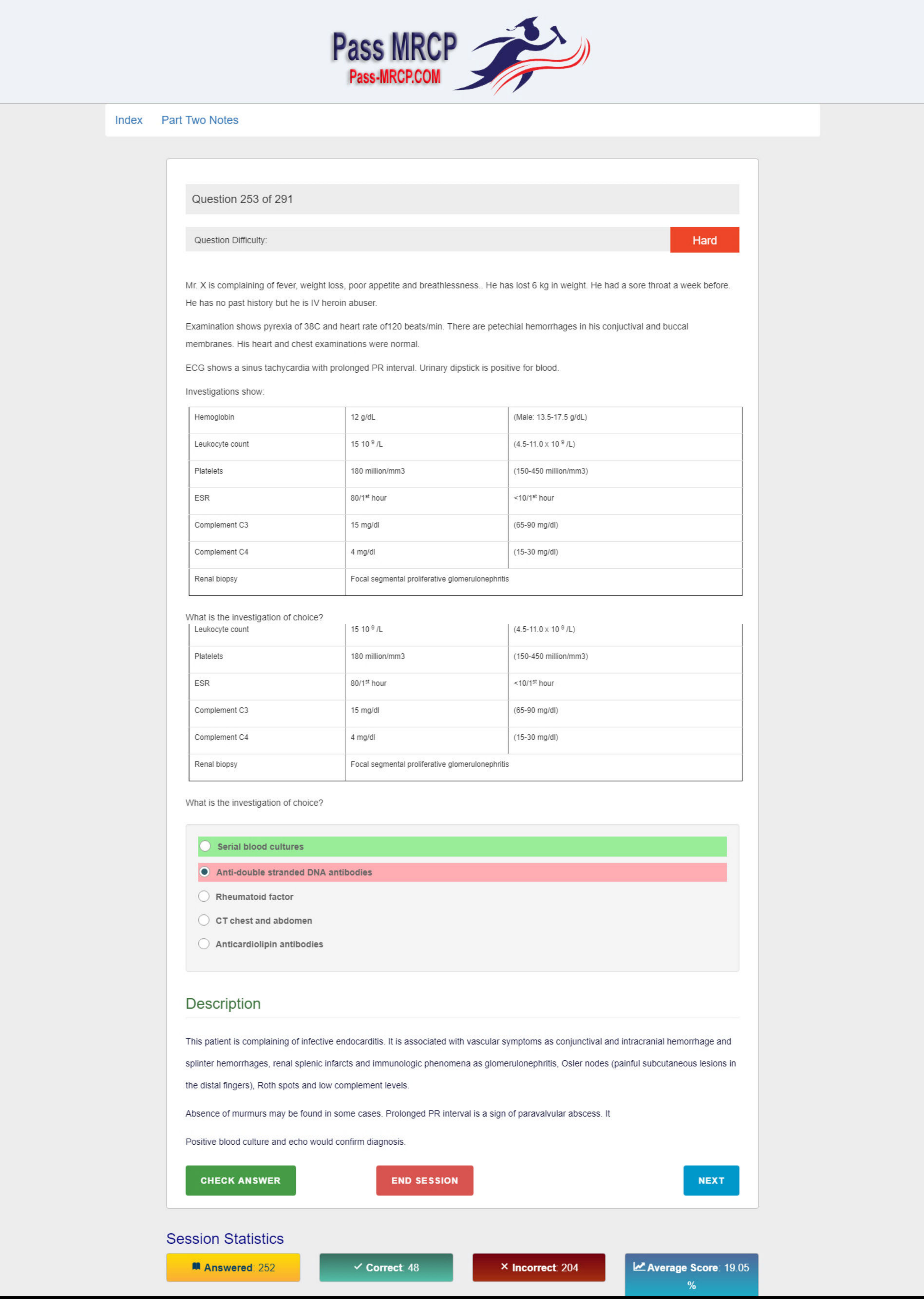
Other guidelines includes

- Offer birth to women with pre-eclampsia before 34 weeks if severe hypertension develops refractory to treatment or maternal or fetal complications develop
- Recommend birth for severe hypertension after 34 weeks when their blood pressure has been controlled and a course of corticosteroids has been completed (for fetal lung maturation if birth is considered within 7 days give two doses of betamethasone 12 mg IM 24 hours apart)
- Recommend birth within 24–48 hours for women to mild or moderate hypertension after 37 weeks

CHECK ANSWER END SESSION NEXT

Session Statistics

Answered: 251 ✓ **Correct**: 48 ✕ **Incorrect**: 203 **Average Score**: 19.12 %



Question 253 of 291

Question Difficulty: Hard

Mr. X is complaining of fever, weight loss, poor appetite and breathlessness.. He has lost 6 kg in weight. He had a sore throat a week before. He has no past history but he is IV heroin abuser.

Examination shows pyrexia of 38C and heart rate of120 beats/min. There are petechial hemorrhages in his conjuctival and buccal membranes. His heart and chest examinations were normal.

ECG shows a sinus tachycardia with prolonged PR interval. Urinary dipstick is positive for blood.

Investigations show:

Hemoglobin	12 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	15 10^9 /L	(4.5-11.0 x 10^9 /L)
Platelets	180 million/mm3	(150-450 million/mm3)
ESR	80/1st hour	<10/1st hour
Complement C3	15 mg/dl	(65-90 mg/dl)
Complement C4	4 mg/dl	(15-30 mg/dl)
Renal biopsy	Focal segmental proliferative glomerulonephritis	

What is the investigation of choice?

Leukocyte count	15 10^9 /L	(4.5-11.0 x 10^9 /L)
Platelets	180 million/mm3	(150-450 million/mm3)
ESR	80/1st hour	<10/1st hour
Complement C3	15 mg/dl	(65-90 mg/dl)
Complement C4	4 mg/dl	(15-30 mg/dl)
Renal biopsy	Focal segmental proliferative glomerulonephritis	

What is the investigation of choice?

- ○ **Serial blood cultures**
- ● **Anti-double stranded DNA antibodies**
- ○ **Rheumatoid factor**
- ○ **CT chest and abdomen**
- ○ **Anticardiolipin antibodies**

Description

This patient is complaining of infective endocarditis. It is associated with vascular symptoms as conjunctival and intracranial hemorrhage and splinter hemorrhages, renal splenic infarcts and immunologic phenomena as glomerulonephritis, Osler nodes (painful subcutaneous lesions in the distal fingers), Roth spots and low complement levels.

Absence of murmurs may be found in some cases. Prolonged PR interval is a sign of paravalvular abscess. It

Positive blood culture and echo would confirm diagnosis.

Session Statistics

Answered: 252 ✓ **Correct**: 48 × **Incorrect**: 204 **Average Score**: 19.05 %

Question 253 of 291

Question Difficulty: **Hard**

Mr. X is complaining of fever, weight loss, poor appetite and breathlessness.. He has lost 6 kg in weight. He had a sore throat a week before. He has no past history but he is IV heroin abuser.

Examination shows pyrexia of 38C and heart rate of120 beats/min. There are petechial hemorrhages in his conjuctival and buccal membranes. His heart and chest examinations were normal.

ECG shows a sinus tachycardia with prolonged PR interval. Urinary dipstick is positive for blood.

Investigations show:

Hemoglobin	12 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	$15\ 10^{9}$ /L	($4.5\text{-}11.0 \times 10^{9}$ /L)
Platelets	180 million/mm3	(150-450 million/mm3)
ESR	80/1st hour	<10/1st hour
Complement C3	15 mg/dl	(65-90 mg/dl)
Complement C4	4 mg/dl	(15-30 mg/dl)
Renal biopsy	Focal segmental proliferative glomerulonephritis	

What is the investigation of choice?

Leukocyte count	$15\ 10^{9}$ /L	($4.5\text{-}11.0 \times 10^{9}$ /L)
Platelets	180 million/mm3	(150-450 million/mm3)
ESR	80/1st hour	<10/1st hour
Complement C3	15 mg/dl	(65-90 mg/dl)
Complement C4	4 mg/dl	(15-30 mg/dl)
Renal biopsy	Focal segmental proliferative glomerulonephritis	

What is the investigation of choice?

- ○ **Serial blood cultures**
- ● **Anti-double stranded DNA antibodies**
- ○ **Rheumatoid factor**
- ○ **CT chest and abdomen**
- ○ **Anticardiolipin antibodies**

Description

This patient is complaining of infective endocarditis. It is associated with vascular symptoms as conjunctival and intracranial hemorrhage and splinter hemorrhages, renal splenic infarcts and immunologic phenomena as glomerulonephritis, Osler nodes (painful subcutaneous lesions in the distal fingers), Roth spots and low complement levels.

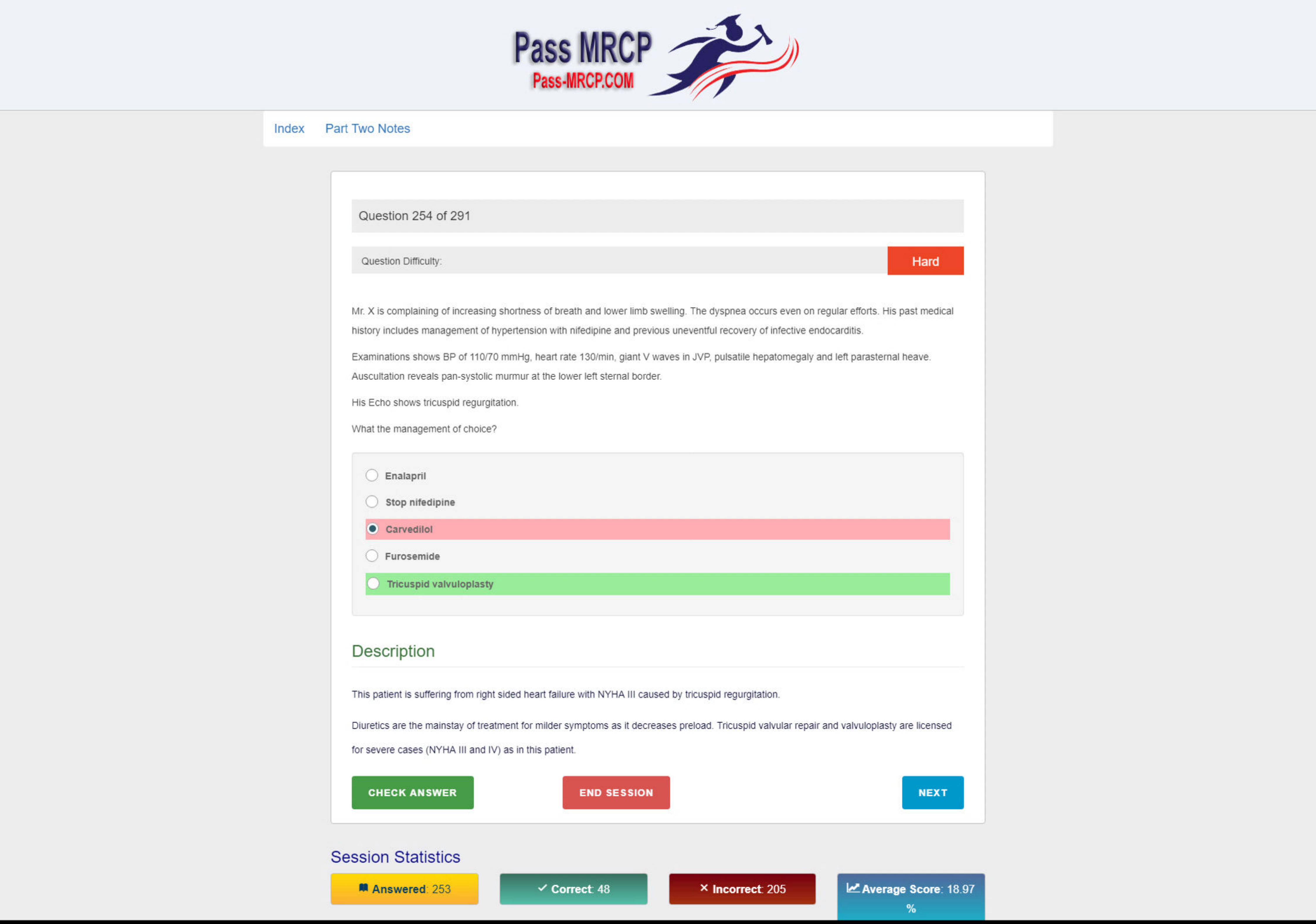
Absence of murmurs may be found in some cases. Prolonged PR interval is a sign of paravalvular abscess. It

Positive blood culture and echo would confirm diagnosis.

CHECK ANSWER END SESSION NEXT

Session Statistics

Answered: 252 ✓ **Correct**: 48 ✕ **Incorrect**: 204 **Average Score**: 19.05 %



Question 254 of 291

Question Difficulty: Hard

Mr. X is complaining of increasing shortness of breath and lower limb swelling. The dyspnea occurs even on regular efforts. His past medical history includes management of hypertension with nifedipine and previous uneventful recovery of infective endocarditis.

Examinations shows BP of 110/70 mmHg, heart rate 130/min, giant V waves in JVP, pulsatile hepatomegaly and left parasternal heave. Auscultation reveals pan-systolic murmur at the lower left sternal border.

His Echo shows tricuspid regurgitation.

What the management of choice?

- ○ Enalapril
- ○ Stop nifedipine
- ● Carvedilol
- ○ Furosemide
- ○ Tricuspid valvuloplasty

Description

This patient is suffering from right sided heart failure with NYHA III caused by tricuspid regurgitation.

Diuretics are the mainstay of treatment for milder symptoms as it decreases preload. Tricuspid valvular repair and valvuloplasty are licensed for severe cases (NYHA III and IV) as in this patient.

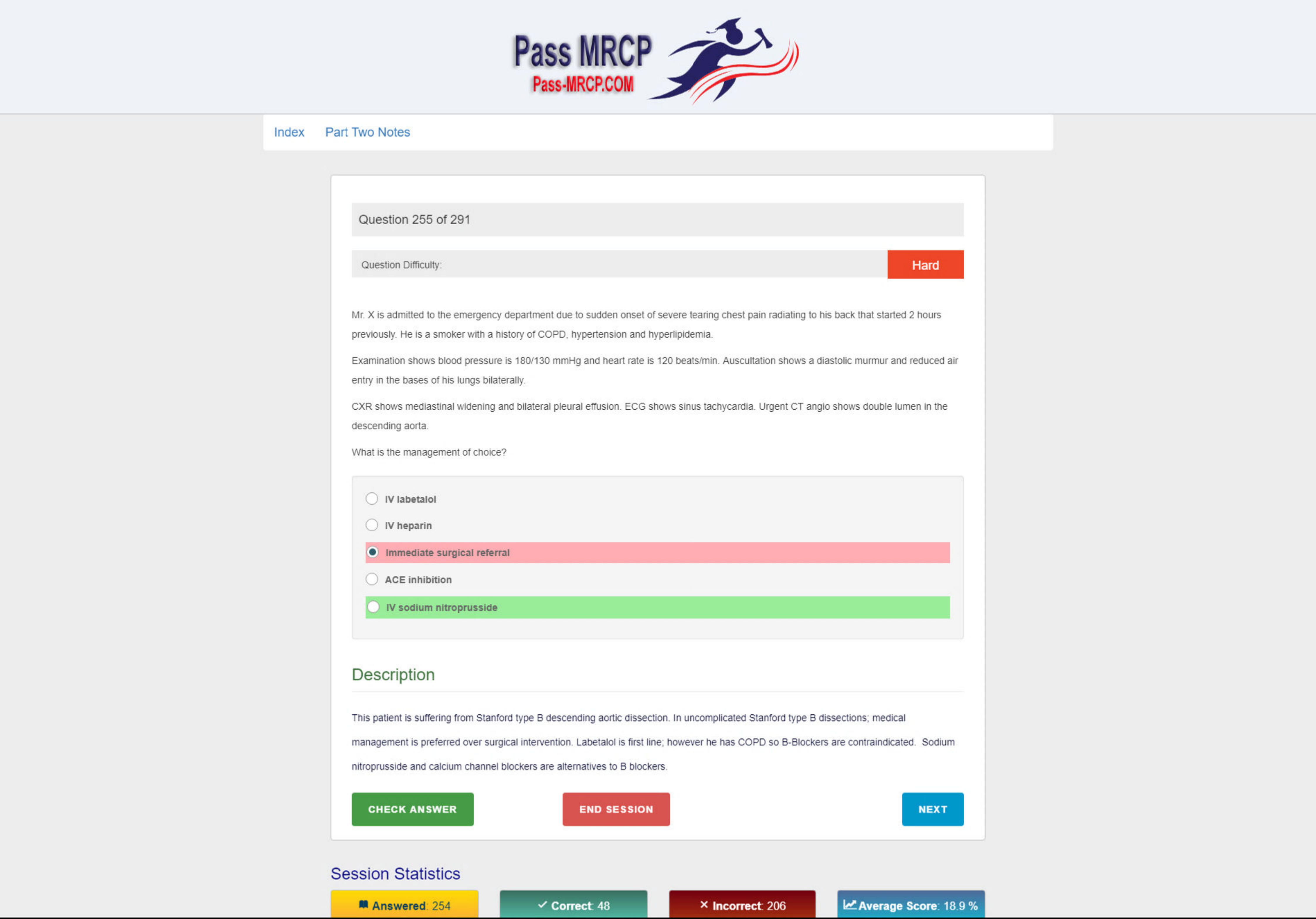
Session Statistics

Answered: 253

✓ Correct: 48

✕ Incorrect: 205

Average Score: 18.97 %



Question 255 of 291

Question Difficulty: **Hard**

Mr. X is admitted to the emergency department due to sudden onset of severe tearing chest pain radiating to his back that started 2 hours previously. He is a smoker with a history of COPD, hypertension and hyperlipidemia.

Examination shows blood pressure is 180/130 mmHg and heart rate is 120 beats/min. Auscultation shows a diastolic murmur and reduced air entry in the bases of his lungs bilaterally.

CXR shows mediastinal widening and bilateral pleural effusion. ECG shows sinus tachycardia. Urgent CT angio shows double lumen in the descending aorta.

What is the management of choice?

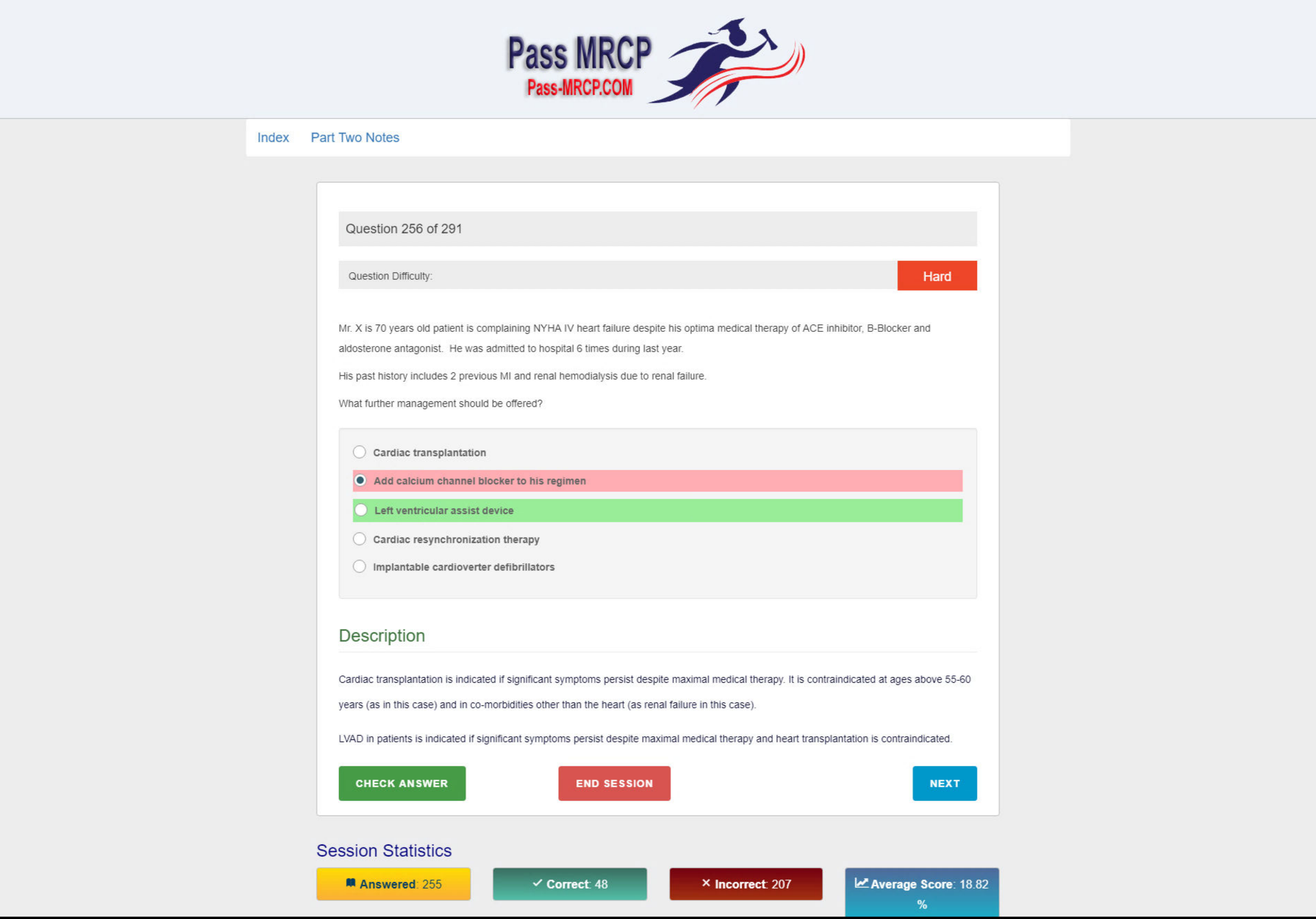
○ **IV labetalol**
○ **IV heparin**
● **Immediate surgical referral**
○ **ACE inhibition**
○ **IV sodium nitroprusside**

Description

This patient is suffering from Stanford type B descending aortic dissection. In uncomplicated Stanford type B dissections; medical management is preferred over surgical intervention. Labetalol is first line; however he has COPD so B-Blockers are contraindicated. Sodium nitroprusside and calcium channel blockers are alternatives to B blockers.

Session Statistics

Answered: 254
✓ **Correct**: 48
✕ **Incorrect**: 206
Average Score: 18.9 %



Question 256 of 291

Question Difficulty: **Hard**

Mr. X is 70 years old patient is complaining NYHA IV heart failure despite his optima medical therapy of ACE inhibitor, B-Blocker and aldosterone antagonist. He was admitted to hospital 6 times during last year.

His past history includes 2 previous MI and renal hemodialysis due to renal failure.

What further management should be offered?

- ○ **Cardiac transplantation**
- ● **Add calcium channel blocker to his regimen**
- ○ **Left ventricular assist device**
- ○ **Cardiac resynchronization therapy**
- ○ **Implantable cardioverter defibrillators**

Description

Cardiac transplantation is indicated if significant symptoms persist despite maximal medical therapy. It is contraindicated at ages above 55-60 years (as in this case) and in co-morbidities other than the heart (as renal failure in this case).

LVAD in patients is indicated if significant symptoms persist despite maximal medical therapy and heart transplantation is contraindicated.

Session Statistics

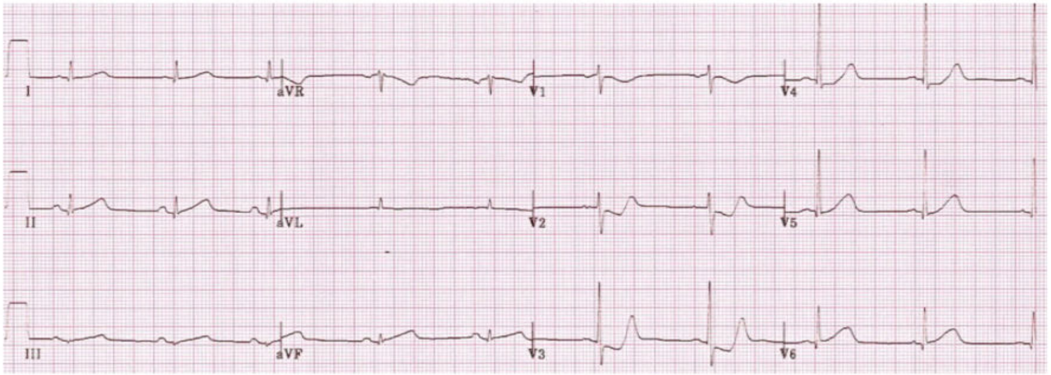
Answered: 255
Correct: 48
Incorrect: 207
Average Score: 18.82 %

Question 257 of 291

Question Difficulty: **Hard**

Mr. X the 70 years old was admitted to the emergency room due to central crushing chest pain which started 1 hour ago. He describes the pain is radiated to his jaws.

His ECG shows in the following image. His troponin was 0.11 ng/ml.



What is the most likely diagnosis?

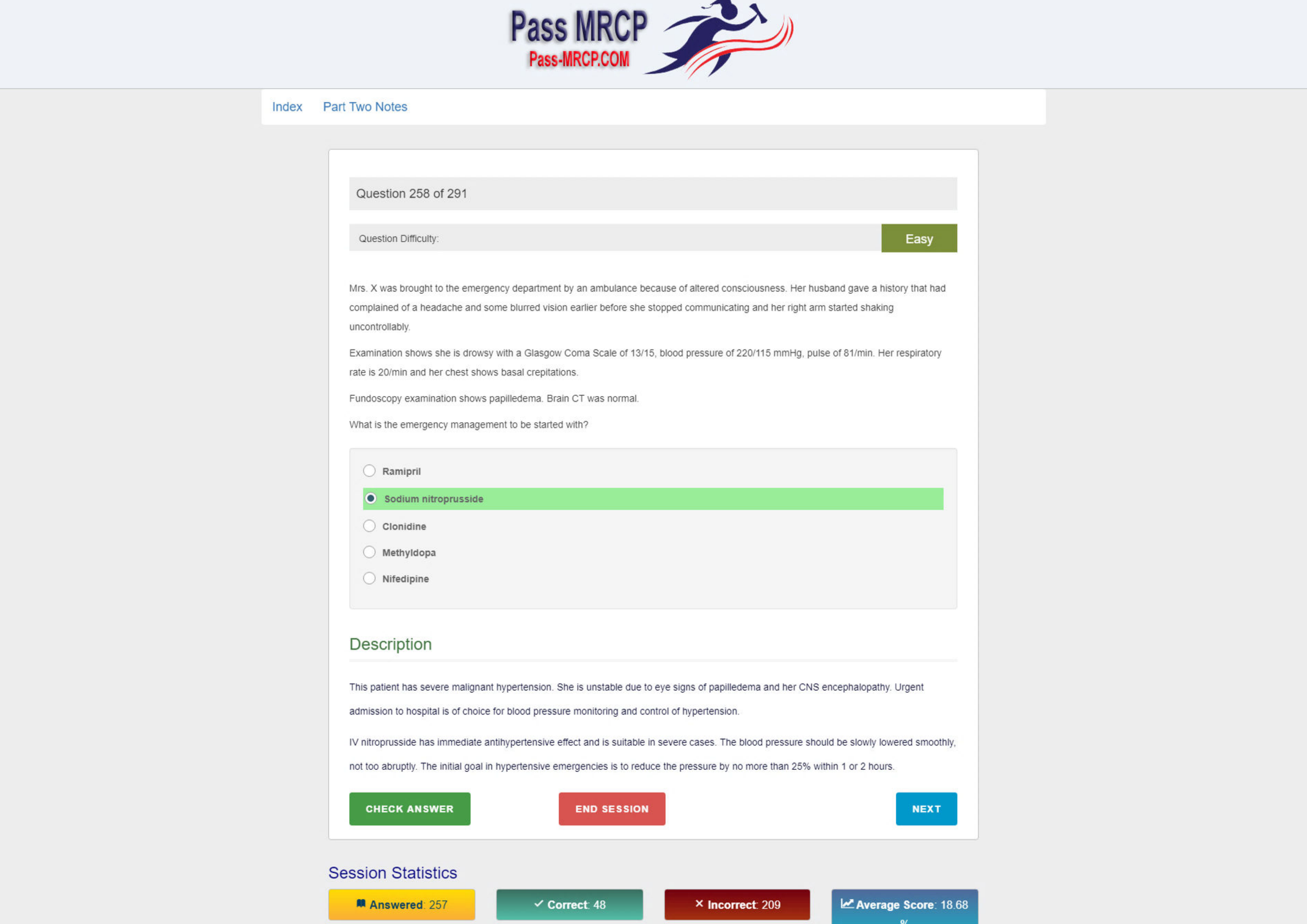
- ○ Posterior wall MI
- ○ Unstable angina
- ● Non-specific chest pain
- ○ Aortic dissection
- ○ Inferior wall MI

Description

The elevated troponin level points towards NSTEMI or STEMI. Posterior MI is a rare condition, it occurs with inferior or lateral wall MI; it is presented by ST depression in V1 to V3 with upright T waves and dominant R waves.

CHECK ANSWER END SESSION NEXT

Session Statistics



Question 258 of 291

Question Difficulty: **Easy**

Mrs. X was brought to the emergency department by an ambulance because of altered consciousness. Her husband gave a history that had complained of a headache and some blurred vision earlier before she stopped communicating and her right arm started shaking uncontrollably.

Examination shows she is drowsy with a Glasgow Coma Scale of 13/15, blood pressure of 220/115 mmHg, pulse of 81/min. Her respiratory rate is 20/min and her chest shows basal crepitations.

Fundoscopy examination shows papilledema. Brain CT was normal.

What is the emergency management to be started with?

- ○ **Ramipril**
- ● **Sodium nitroprusside**
- ○ **Clonidine**
- ○ **Methyldopa**
- ○ **Nifedipine**

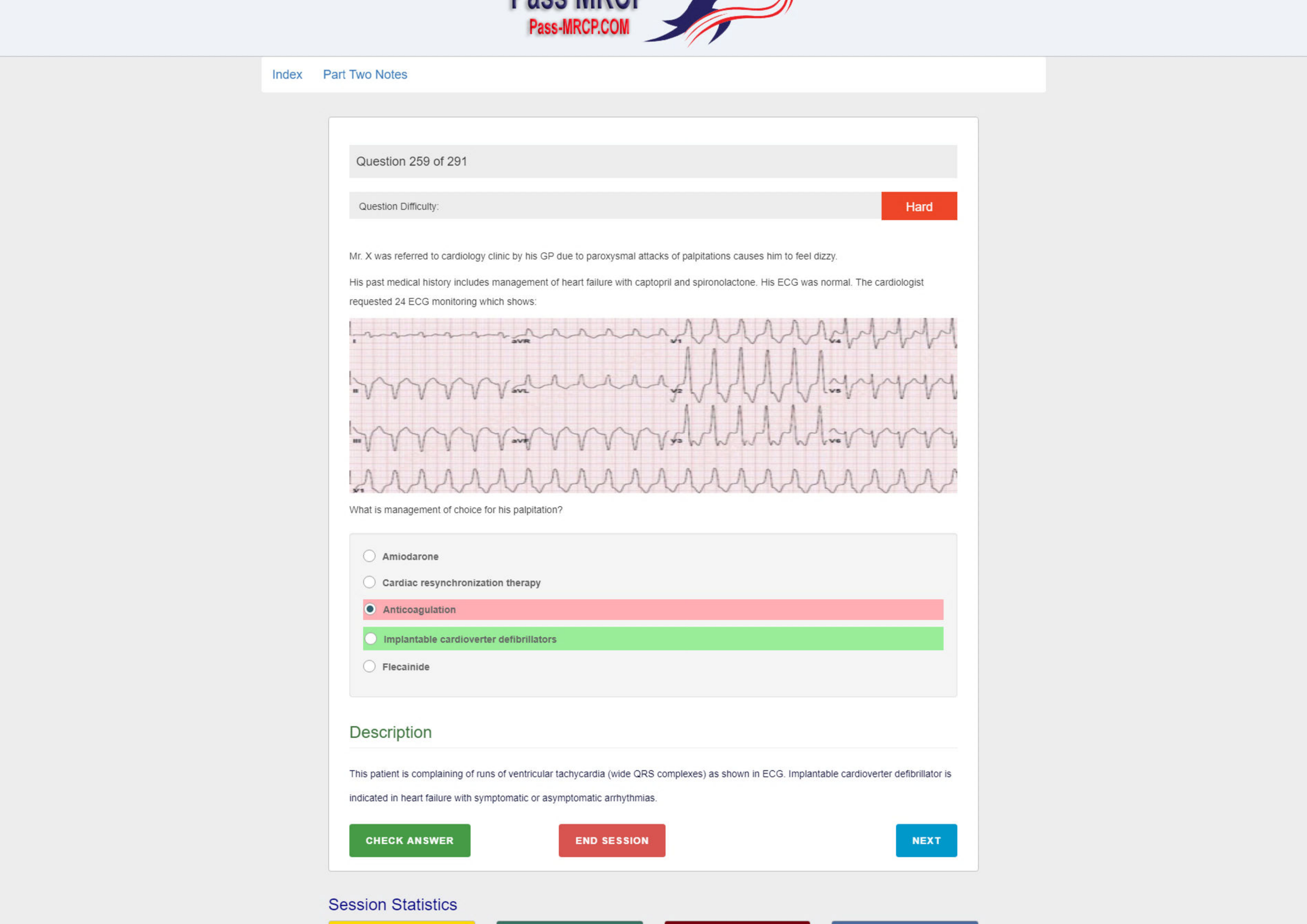
Description

This patient has severe malignant hypertension. She is unstable due to eye signs of papilledema and her CNS encephalopathy. Urgent admission to hospital is of choice for blood pressure monitoring and control of hypertension.

IV nitroprusside has immediate antihypertensive effect and is suitable in severe cases. The blood pressure should be slowly lowered smoothly, not too abruptly. The initial goal in hypertensive emergencies is to reduce the pressure by no more than 25% within 1 or 2 hours.

Session Statistics

Answered: 257
✓ **Correct**: 48
✕ **Incorrect**: 209
Average Score: 18.68 %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Index
Part Two Notes

Question 259 of 291

Question Difficulty: **Hard**

Mr. X was referred to cardiology clinic by his GP due to paroxysmal attacks of palpitations causes him to feel dizzy.

His past medical history includes management of heart failure with captopril and spironolactone. His ECG was normal. The cardiologist requested 24 ECG monitoring which shows:

I
aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
V1

What is management of choice for his palpitation?

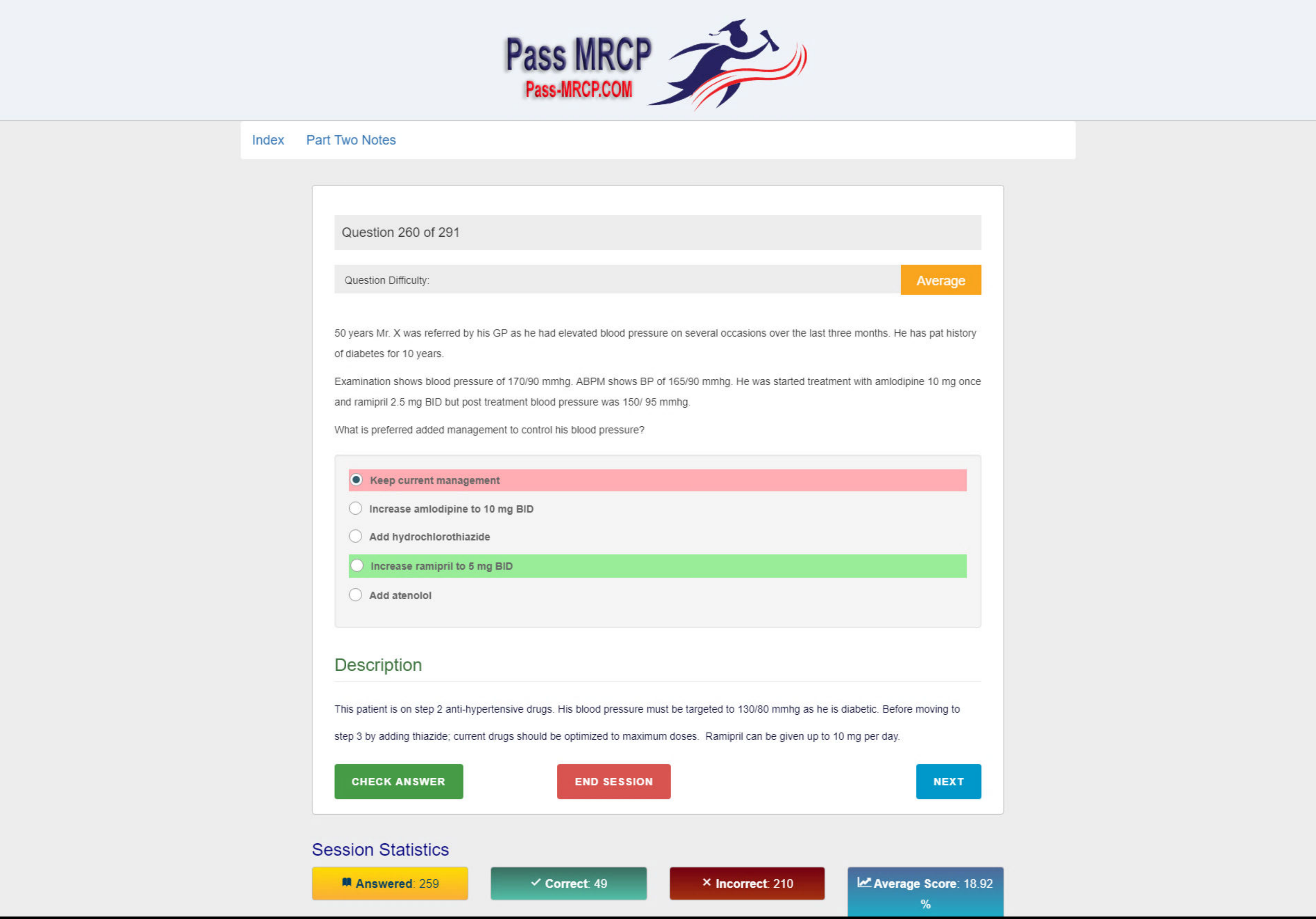
- ○ **Amiodarone**
- ○ **Cardiac resynchronization therapy**
- ● **Anticoagulation**
- ○ **Implantable cardioverter defibrillators**
- ○ **Flecainide**

Description

This patient is complaining of runs of ventricular tachycardia (wide QRS complexes) as shown in ECG. Implantable cardioverter defibrillator is indicated in heart failure with symptomatic or asymptomatic arrhythmias.

CHECK ANSWER
END SESSION
NEXT

Session Statistics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Index
Part Two Notes

Question 260 of 291

Question Difficulty: Average

50 years Mr. X was referred by his GP as he had elevated blood pressure on several occasions over the last three months. He has pat history of diabetes for 10 years.

Examination shows blood pressure of 170/90 mmhg. ABPM shows BP of 165/90 mmhg. He was started treatment with amlodipine 10 mg once and ramipril 2.5 mg BID but post treatment blood pressure was 150/ 95 mmhg.

What is preferred added management to control his blood pressure?

- ● Keep current management
- ○ Increase amlodipine to 10 mg BID
- ○ Add hydrochlorothiazide
- ○ Increase ramipril to 5 mg BID
- ○ Add atenolol

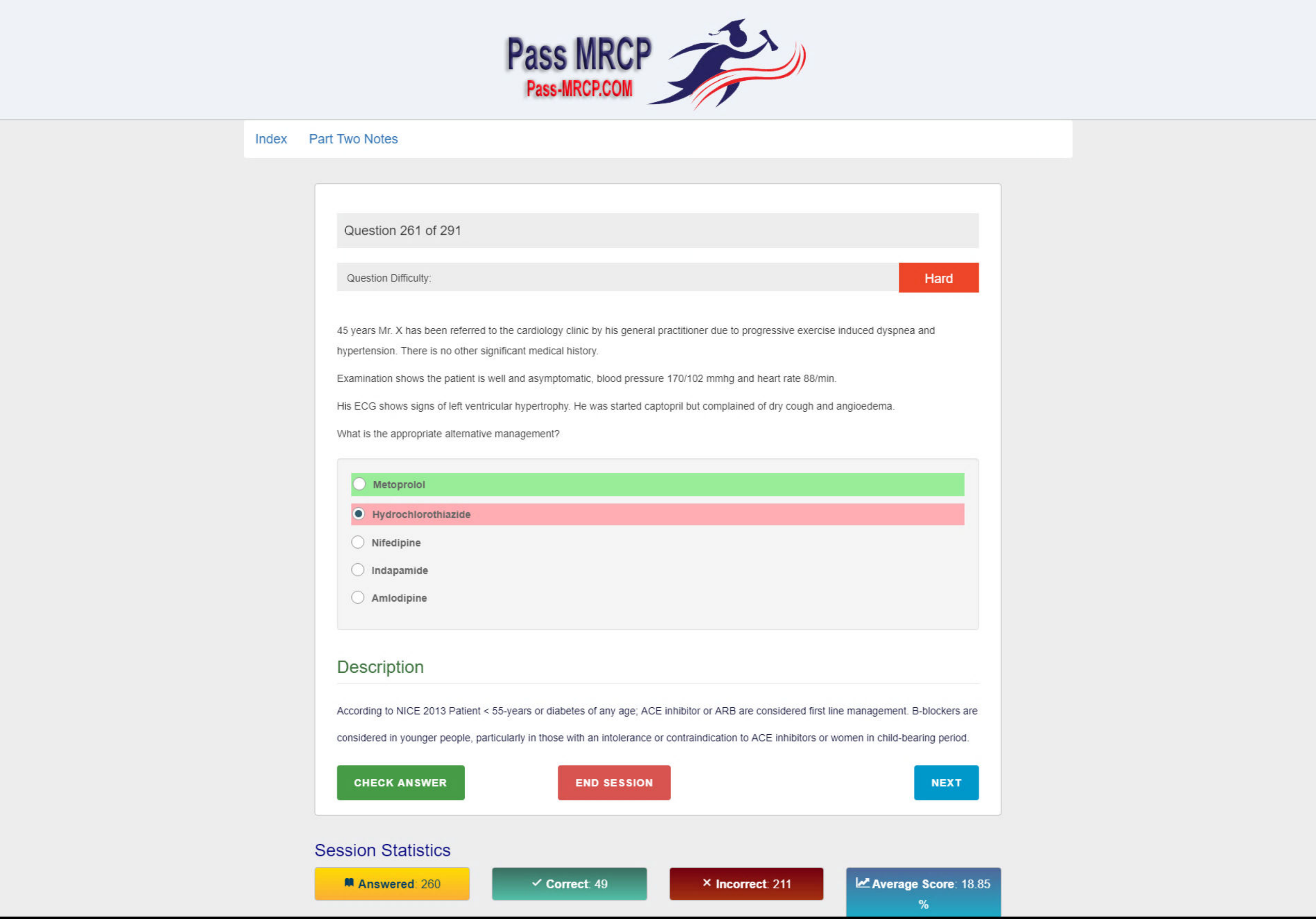
Description

This patient is on step 2 anti-hypertensive drugs. His blood pressure must be targeted to 130/80 mmhg as he is diabetic. Before moving to step 3 by adding thiazide; current drugs should be optimized to maximum doses. Ramipril can be given up to 10 mg per day.

CHECK ANSWER
END SESSION
NEXT

Session Statistics

Answered: 259
✓ Correct: 49
✕ Incorrect: 210
Average Score: 18.92 %


Pass MRCP
Pass-MRCP.COM
Index
Part Two Notes

Question 261 of 291

Question Difficulty: Hard

45 years Mr. X has been referred to the cardiology clinic by his general practitioner due to progressive exercise induced dyspnea and hypertension. There is no other significant medical history.

Examination shows the patient is well and asymptomatic, blood pressure 170/102 mmhg and heart rate 88/min.

His ECG shows signs of left ventricular hypertrophy. He was started captopril but complained of dry cough and angioedema.

What is the appropriate alternative management?

○ Metoprolol
● Hydrochlorothiazide
○ Nifedipine
○ Indapamide
○ Amlodipine

Description

According to NICE 2013 Patient < 55-years or diabetes of any age; ACE inhibitor or ARB are considered first line management. B-blockers are considered in younger people, particularly in those with an intolerance or contraindication to ACE inhibitors or women in child-bearing period.

CHECK ANSWER
END SESSION
NEXT
Session Statistics
Answered: 260
✓ Correct: 49
✕ Incorrect: 211
Average Score: 18.85 %

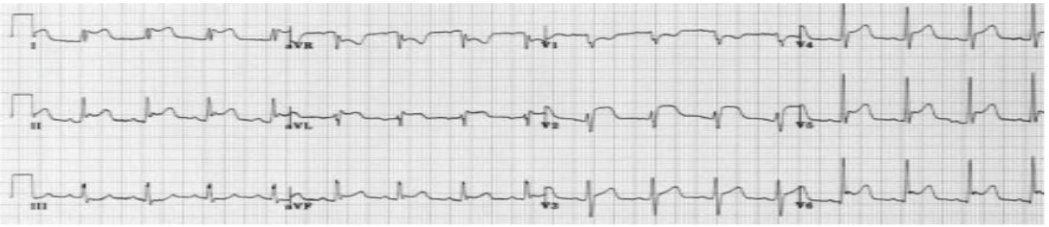
Question 262 of 291

Question Difficulty: **Hard**

Mr. X is suffering from 8 hours sub-sternal chest pain that is sharp and increases with respiration, and is slightly relieved when he leans forward. He had been feeling unwell for 1 week with rhinorrhea, dry cough, generalized myalgia and low-grade fever. He has no past medical history of note.

Examination reveals he is calm without any distress. His pulse is 70/min, blood pressure 144/84 mmHg and respiratory rate 14/min. There is a pericardial friction rub best heard at the left sternal edge. The rest of the examination is unremarkable.

His ECG is shown in the image. ESR was 30 and echo was normal.



What is the most likely diagnosis?

- ○ **Myocarditis**
- ○ **Stable angina**
- ○ **Myocardial infarction**
- ● **Pneumothorax**
- ○ **Acute pericarditis**

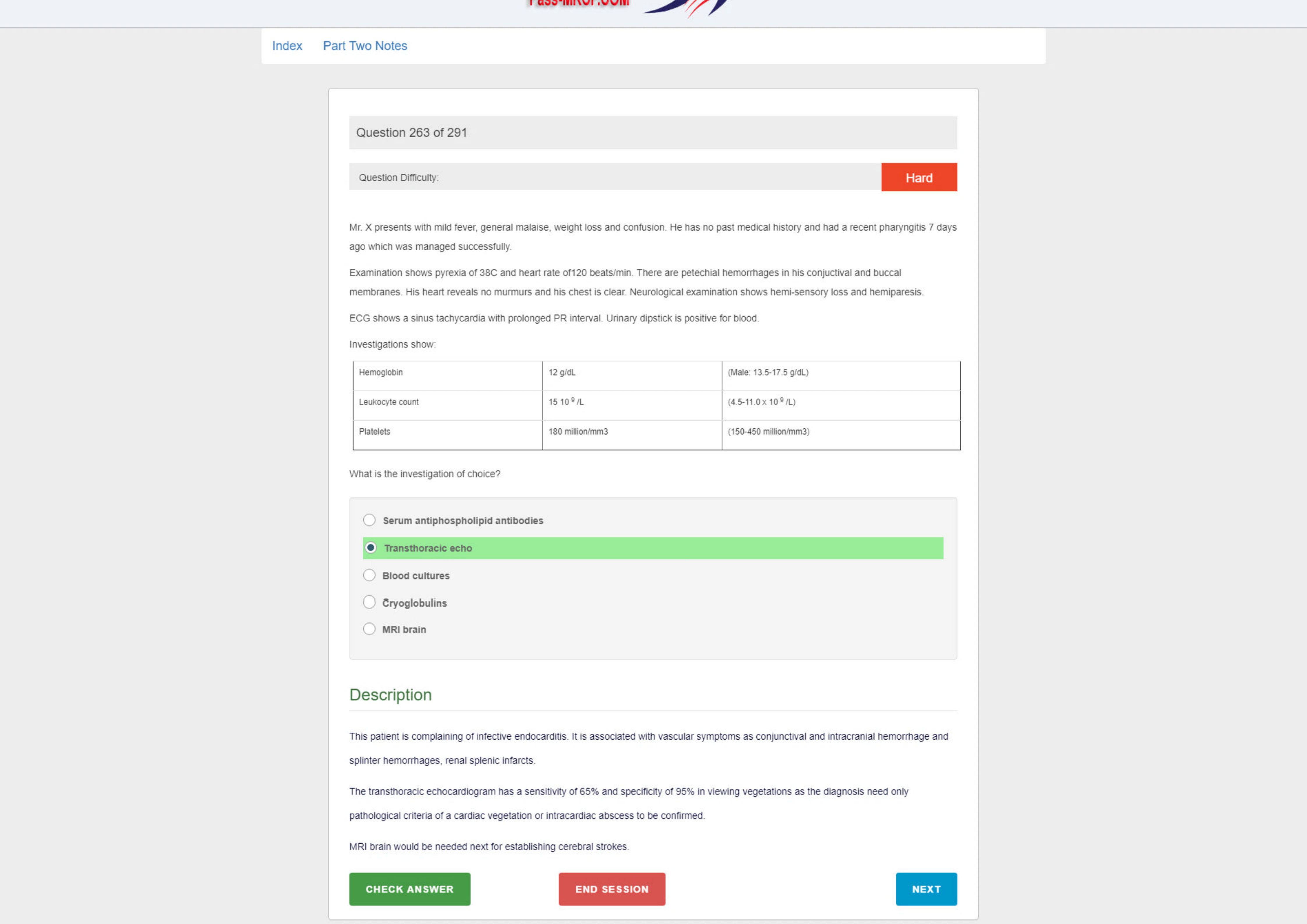
Description

Acute pericarditis is an inflammation of the sac surrounding the heart; it is usually lasting < 6 weeks. It is usually occurs following acute viral illness.

Chest pain which of sudden onset, pleuritic in nature, worsens with inspiration and lying down and may be alleviated with sitting up and leaning forward.

Troponin and CK-MB levels increase in 35-50% of cases. ECG shows diffuse nom-specific ST elevations.

CHECK ANSWER **END SESSION** **NEXT**



Question 263 of 291

Question Difficulty: **Hard**

Mr. X presents with mild fever, general malaise, weight loss and confusion. He has no past medical history and had a recent pharyngitis 7 days ago which was managed successfully.

Examination shows pyrexia of 38C and heart rate of120 beats/min. There are petechial hemorrhages in his conjuctival and buccal membranes. His heart reveals no murmurs and his chest is clear. Neurological examination shows hemi-sensory loss and hemiparesis.

ECG shows a sinus tachycardia with prolonged PR interval. Urinary dipstick is positive for blood.

Investigations show:

Hemoglobin	12 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	$15\ 10^9$ /L	(4.5-11.0 x 10^9 /L)
Platelets	180 million/mm3	(150-450 million/mm3)

What is the investigation of choice?

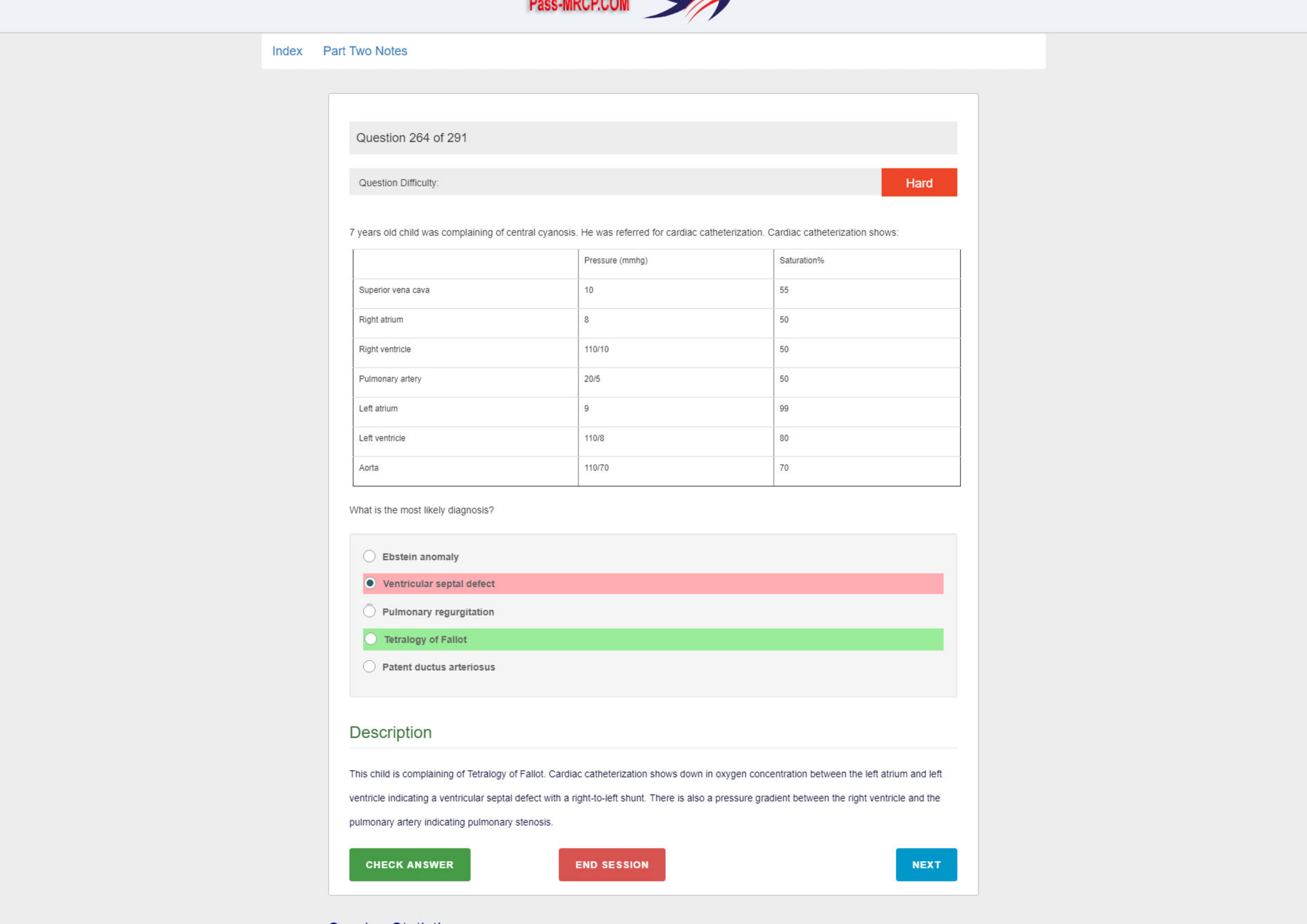
○ **Serum antiphospholipid antibodies**
● **Transthoracic echo**
○ **Blood cultures**
○ **Cryoglobulins**
○ **MRI brain**

Description

This patient is complaining of infective endocarditis. It is associated with vascular symptoms as conjunctival and intracranial hemorrhage and splinter hemorrhages, renal splenic infarcts.

The transthoracic echocardiogram has a sensitivity of 65% and specificity of 95% in viewing vegetations as the diagnosis need only pathological criteria of a cardiac vegetation or intracardiac abscess to be confirmed.

MRI brain would be needed next for establishing cerebral strokes.



Question 264 of 291

Question Difficulty: **Hard**

7 years old child was complaining of central cyanosis. He was referred for cardiac catheterization. Cardiac catheterization shows:

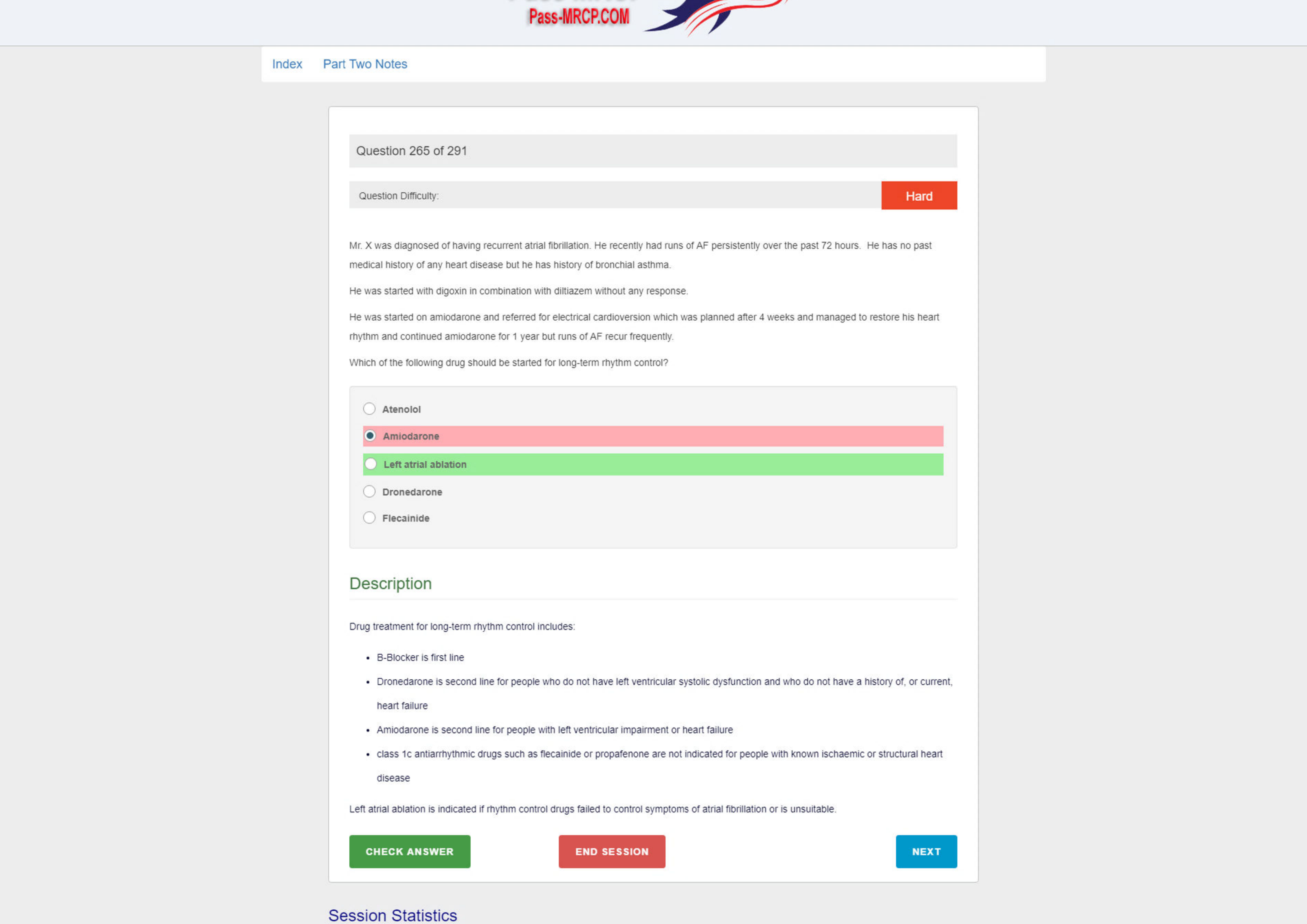
	Pressure (mmhg)	Saturation%
Superior vena cava	10	55
Right atrium	8	50
Right ventricle	110/10	50
Pulmonary artery	20/5	50
Left atrium	9	99
Left ventricle	110/8	80
Aorta	110/70	70

What is the most likely diagnosis?

- ○ **Ebstein anomaly**
- ● **Ventricular septal defect**
- ○ **Pulmonary regurgitation**
- ○ **Tetralogy of Fallot**
- ○ **Patent ductus arteriosus**

Description

This child is complaining of Tetralogy of Fallot. Cardiac catheterization shows down in oxygen concentration between the left atrium and left ventricle indicating a ventricular septal defect with a right-to-left shunt. There is also a pressure gradient between the right ventricle and the pulmonary artery indicating pulmonary stenosis.



Question 265 of 291

Question Difficulty: Hard

Mr. X was diagnosed of having recurrent atrial fibrillation. He recently had runs of AF persistently over the past 72 hours. He has no past medical history of any heart disease but he has history of bronchial asthma.

He was started with digoxin in combination with diltiazem without any response.

He was started on amiodarone and referred for electrical cardioversion which was planned after 4 weeks and managed to restore his heart rhythm and continued amiodarone for 1 year but runs of AF recur frequently.

Which of the following drug should be started for long-term rhythm control?

○ Atenolol

● Amiodarone

○ Left atrial ablation

○ Dronedarone

○ Flecainide

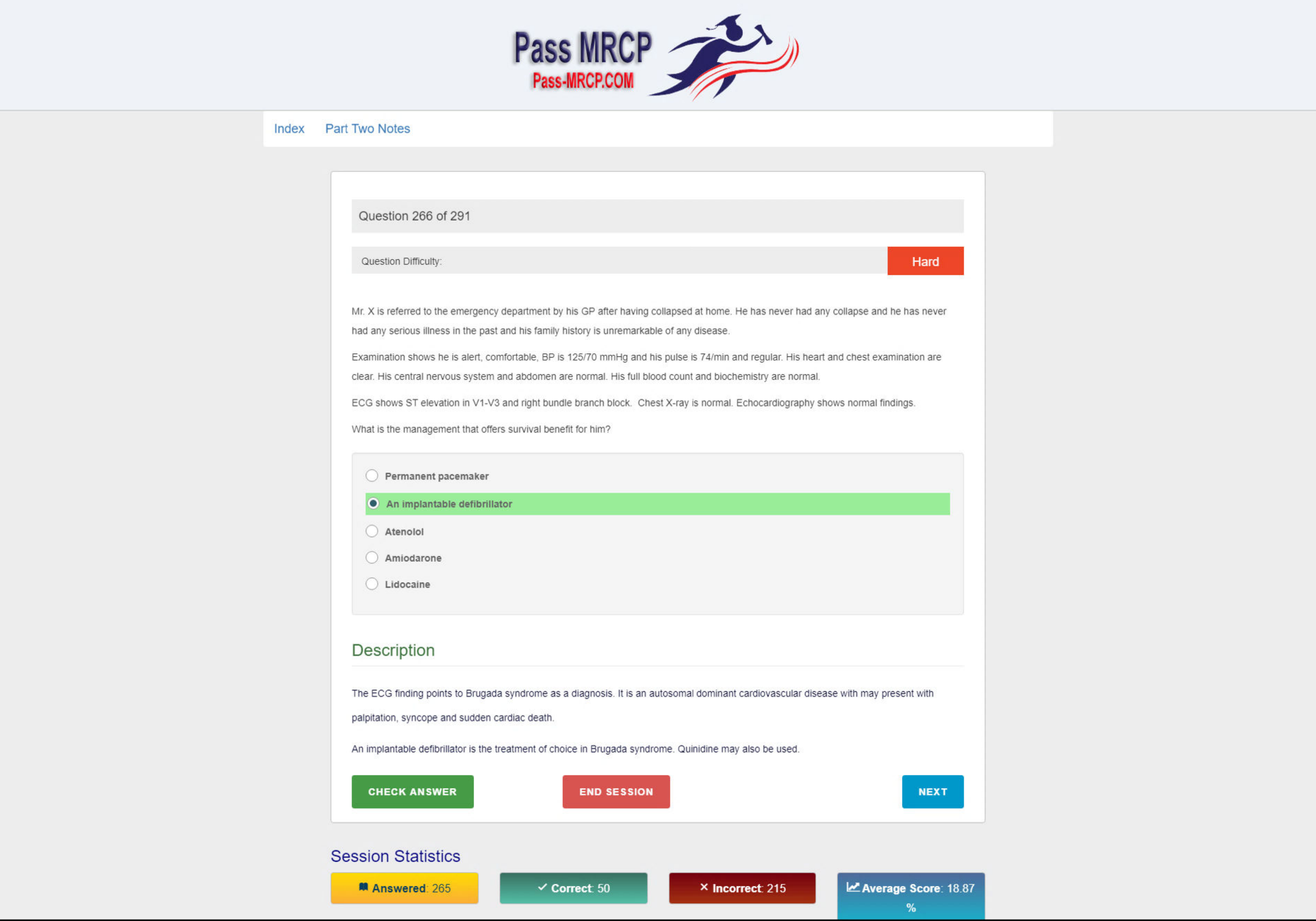
Description

Drug treatment for long-term rhythm control includes:

- B-Blocker is first line
- Dronedarone is second line for people who do not have left ventricular systolic dysfunction and who do not have a history of, or current, heart failure
- Amiodarone is second line for people with left ventricular impairment or heart failure
- class 1c antiarrhythmic drugs such as flecainide or propafenone are not indicated for people with known ischaemic or structural heart disease

Left atrial ablation is indicated if rhythm control drugs failed to control symptoms of atrial fibrillation or is unsuitable.

Session Statistics



Question 266 of 291

Question Difficulty: Hard

Mr. X is referred to the emergency department by his GP after having collapsed at home. He has never had any collapse and he has never had any serious illness in the past and his family history is unremarkable of any disease.

Examination shows he is alert, comfortable, BP is 125/70 mmHg and his pulse is 74/min and regular. His heart and chest examination are clear. His central nervous system and abdomen are normal. His full blood count and biochemistry are normal.

ECG shows ST elevation in V1-V3 and right bundle branch block. Chest X-ray is normal. Echocardiography shows normal findings.

What is the management that offers survival benefit for him?

○ **Permanent pacemaker**
● **An implantable defibrillator**
○ **Atenolol**
○ **Amiodarone**
○ **Lidocaine**

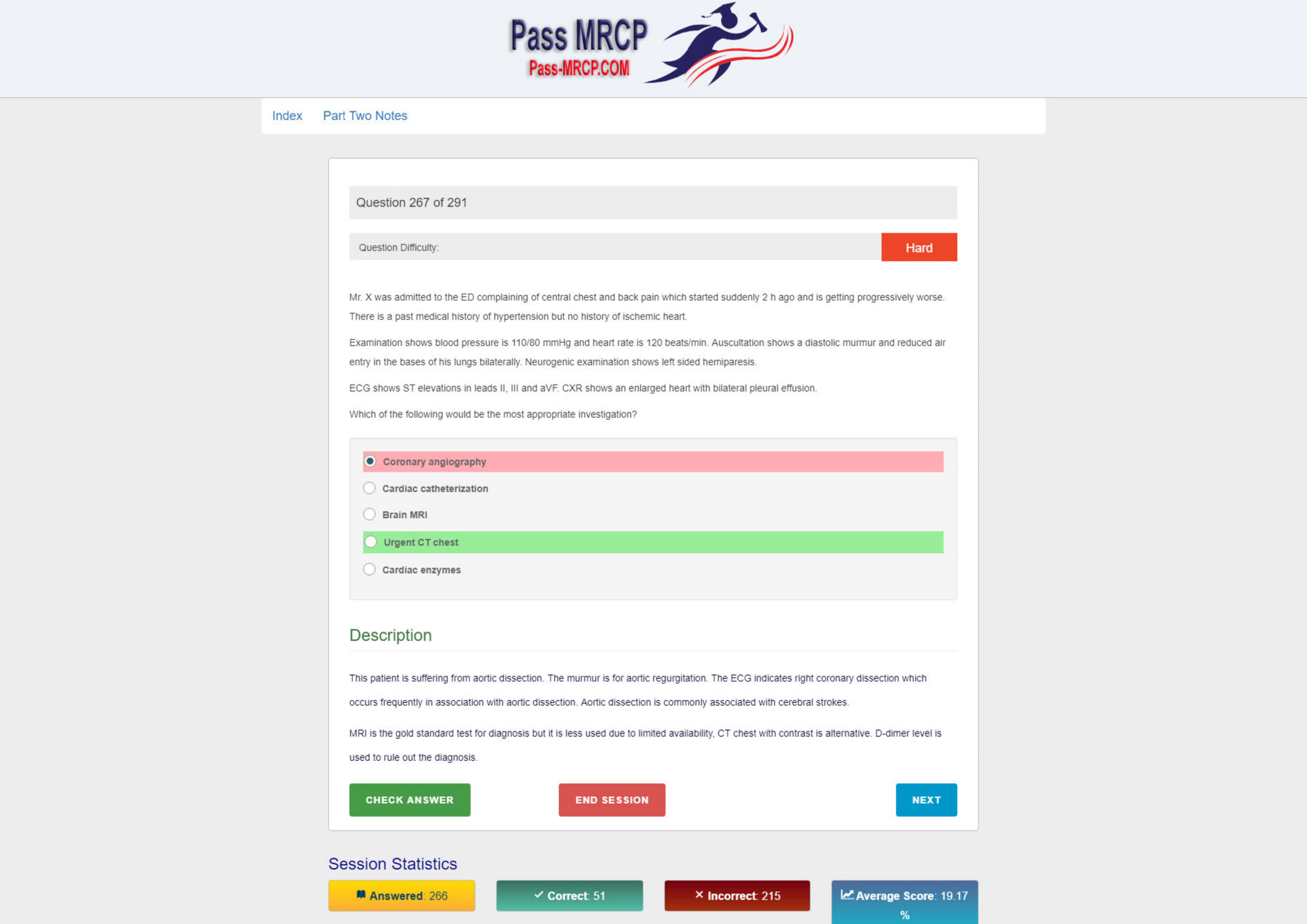
Description

The ECG finding points to Brugada syndrome as a diagnosis. It is an autosomal dominant cardiovascular disease with may present with palpitation, syncope and sudden cardiac death.

An implantable defibrillator is the treatment of choice in Brugada syndrome. Quinidine may also be used.

Session Statistics

Answered: 265
Correct: 50
Incorrect: 215
Average Score: 18.87 %



Question 267 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the ED complaining of central chest and back pain which started suddenly 2 h ago and is getting progressively worse. There is a past medical history of hypertension but no history of ischemic heart.

Examination shows blood pressure is 110/80 mmHg and heart rate is 120 beats/min. Auscultation shows a diastolic murmur and reduced air entry in the bases of his lungs bilaterally. Neurogenic examination shows left sided hemiparesis.

ECG shows ST elevations in leads II, III and aVF. CXR shows an enlarged heart with bilateral pleural effusion.

Which of the following would be the most appropriate investigation?

- ● Coronary angiography
- ○ Cardiac catheterization
- ○ Brain MRI
- ○ Urgent CT chest
- ○ Cardiac enzymes

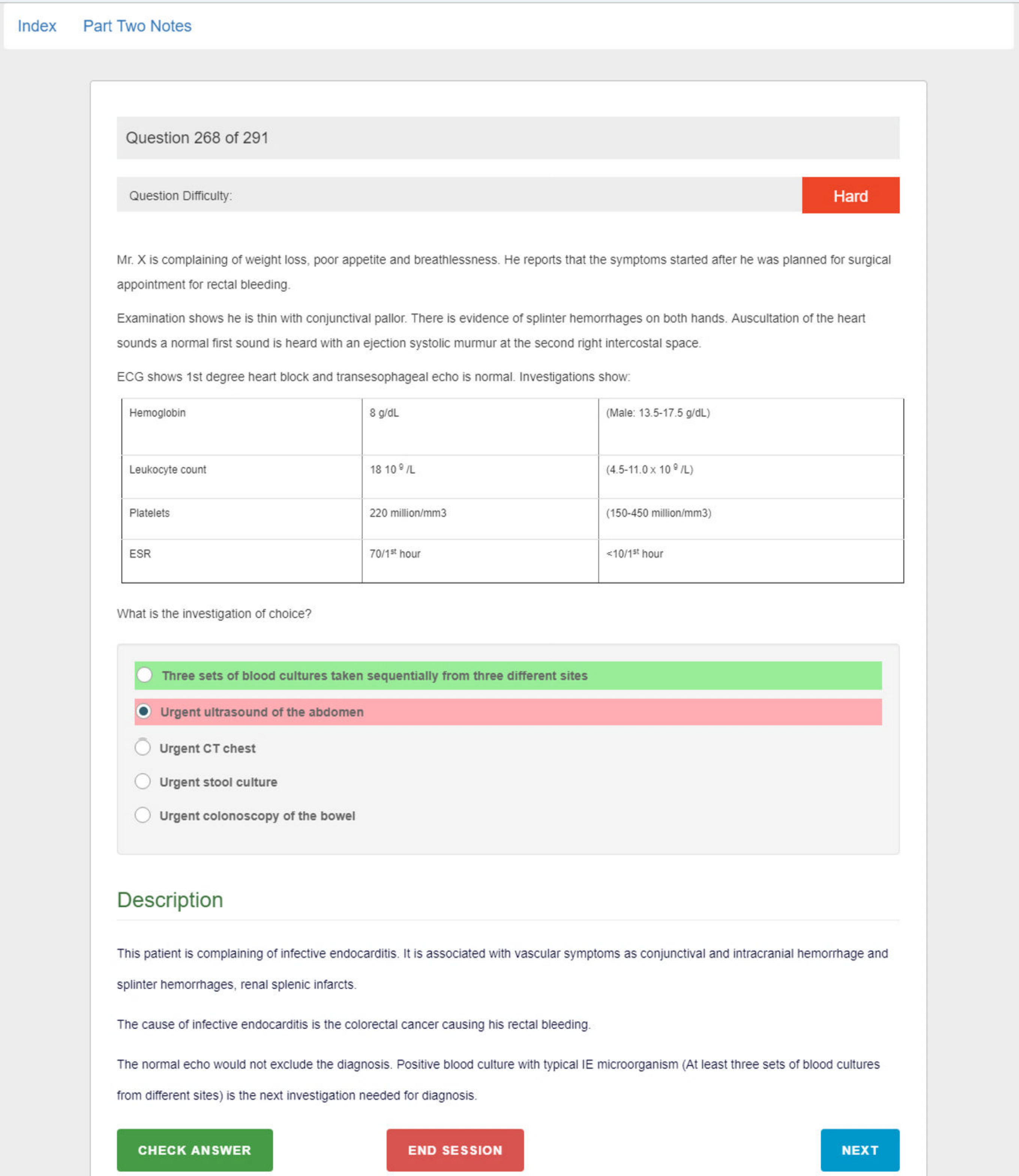
Description

This patient is suffering from aortic dissection. The murmur is for aortic regurgitation. The ECG indicates right coronary dissection which occurs frequently in association with aortic dissection. Aortic dissection is commonly associated with cerebral strokes.

MRI is the gold standard test for diagnosis but it is less used due to limited availability, CT chest with contrast is alternative. D-dimer level is used to rule out the diagnosis.

Session Statistics

Answered: 266
✓ **Correct**: 51
✕ **Incorrect**: 215
Average Score: 19.17 %



Question 268 of 291

Question Difficulty: **Hard**

Mr. X is complaining of weight loss, poor appetite and breathlessness. He reports that the symptoms started after he was planned for surgical appointment for rectal bleeding.

Examination shows he is thin with conjunctival pallor. There is evidence of splinter hemorrhages on both hands. Auscultation of the heart sounds a normal first sound is heard with an ejection systolic murmur at the second right intercostal space.

ECG shows 1st degree heart block and transesophageal echo is normal. Investigations show:

Hemoglobin	8 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	18 10^9 /L	(4.5-11.0 x 10^9 /L)
Platelets	220 million/mm3	(150-450 million/mm3)
ESR	70/1st hour	<10/1st hour

What is the investigation of choice?

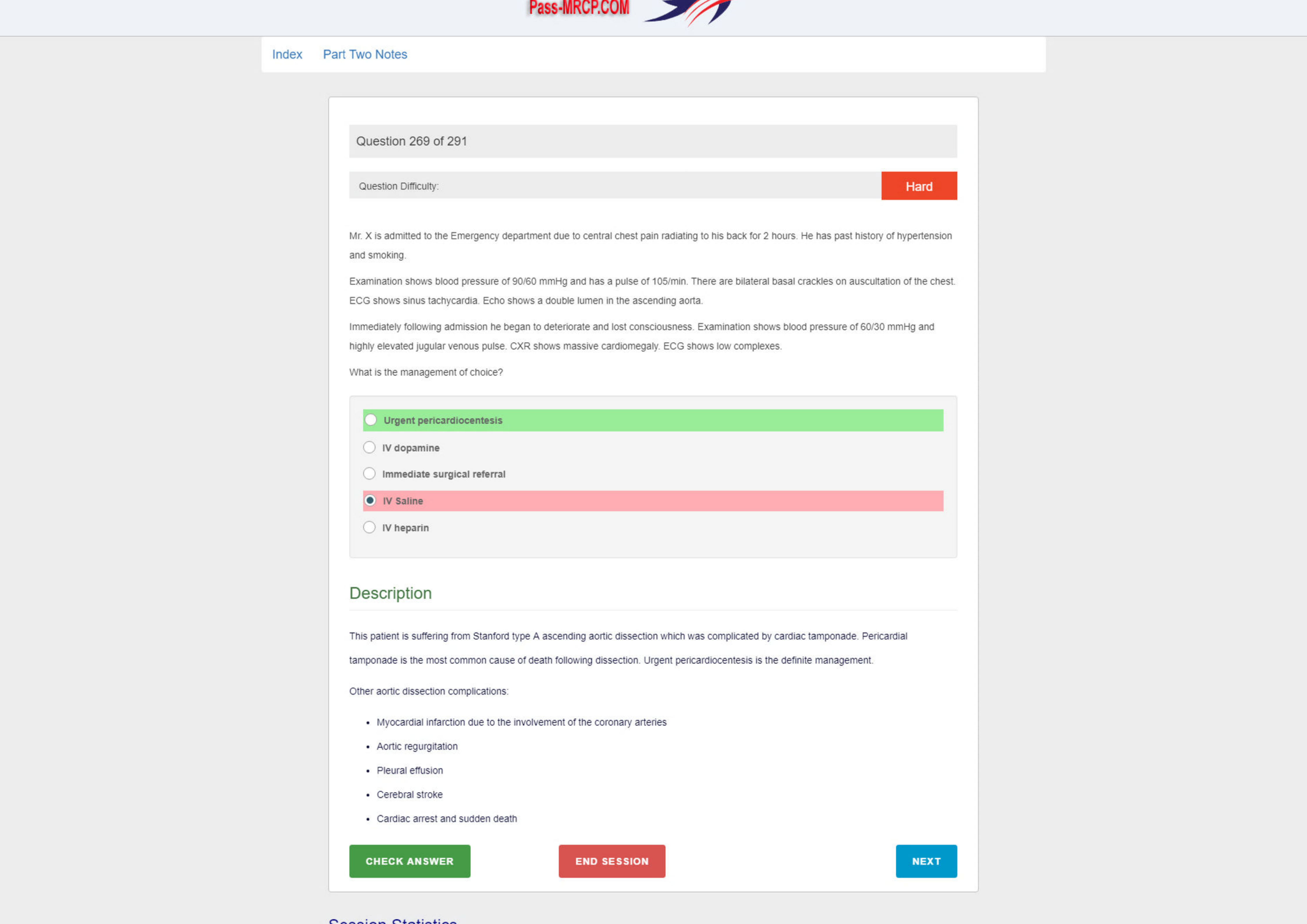
- ○ **Three sets of blood cultures taken sequentially from three different sites**
- ● **Urgent ultrasound of the abdomen**
- ○ **Urgent CT chest**
- ○ **Urgent stool culture**
- ○ **Urgent colonoscopy of the bowel**

Description

This patient is complaining of infective endocarditis. It is associated with vascular symptoms as conjunctival and intracranial hemorrhage and splinter hemorrhages, renal splenic infarcts.

The cause of infective endocarditis is the colorectal cancer causing his rectal bleeding.

The normal echo would not exclude the diagnosis. Positive blood culture with typical IE microorganism (At least three sets of blood cultures from different sites) is the next investigation needed for diagnosis.



Question 269 of 291

Question Difficulty: Hard

Mr. X is admitted to the Emergency department due to central chest pain radiating to his back for 2 hours. He has past history of hypertension and smoking.

Examination shows blood pressure of 90/60 mmHg and has a pulse of 105/min. There are bilateral basal crackles on auscultation of the chest. ECG shows sinus tachycardia. Echo shows a double lumen in the ascending aorta.

Immediately following admission he began to deteriorate and lost consciousness. Examination shows blood pressure of 60/30 mmHg and highly elevated jugular venous pulse. CXR shows massive cardiomegaly. ECG shows low complexes.

What is the management of choice?

○ **Urgent pericardiocentesis**
○ **IV dopamine**
○ **Immediate surgical referral**
● **IV Saline**
○ **IV heparin**

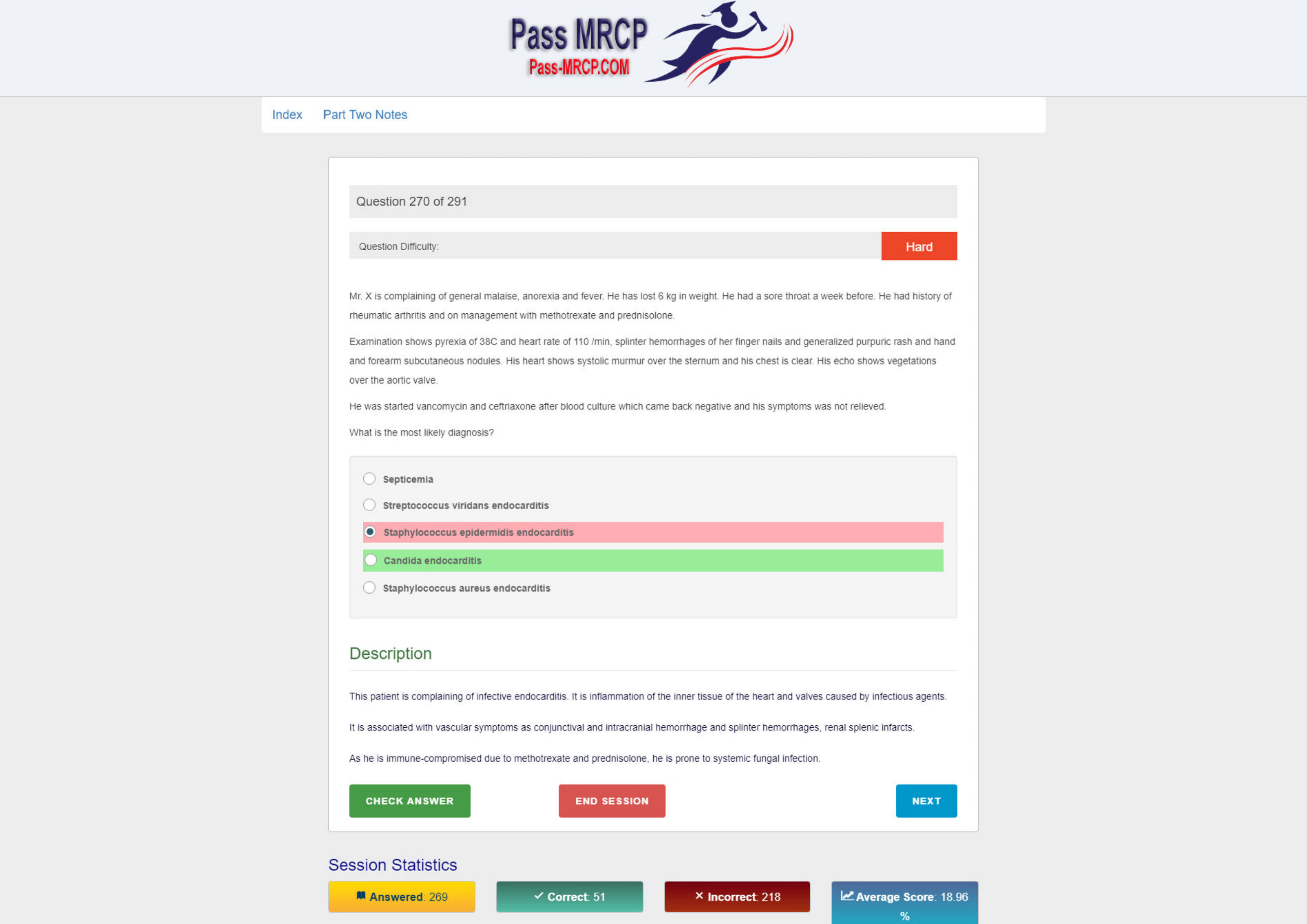
Description

This patient is suffering from Stanford type A ascending aortic dissection which was complicated by cardiac tamponade. Pericardial tamponade is the most common cause of death following dissection. Urgent pericardiocentesis is the definite management.

Other aortic dissection complications:

- Myocardial infarction due to the involvement of the coronary arteries
- Aortic regurgitation
- Pleural effusion
- Cerebral stroke
- Cardiac arrest and sudden death

Session Statistics



Question 270 of 291

Question Difficulty: Hard

Mr. X is complaining of general malaise, anorexia and fever. He has lost 6 kg in weight. He had a sore throat a week before. He had history of rheumatic arthritis and on management with methotrexate and prednisolone.

Examination shows pyrexia of 38C and heart rate of 110 /min, splinter hemorrhages of her finger nails and generalized purpuric rash and hand and forearm subcutaneous nodules. His heart shows systolic murmur over the sternum and his chest is clear. His echo shows vegetations over the aortic valve.

He was started vancomycin and ceftriaxone after blood culture which came back negative and his symptoms was not relieved.

What is the most likely diagnosis?

○ Septicemia
○ Streptococcus viridans endocarditis
● Staphylococcus epidermidis endocarditis
○ Candida endocarditis
○ Staphylococcus aureus endocarditis

Description

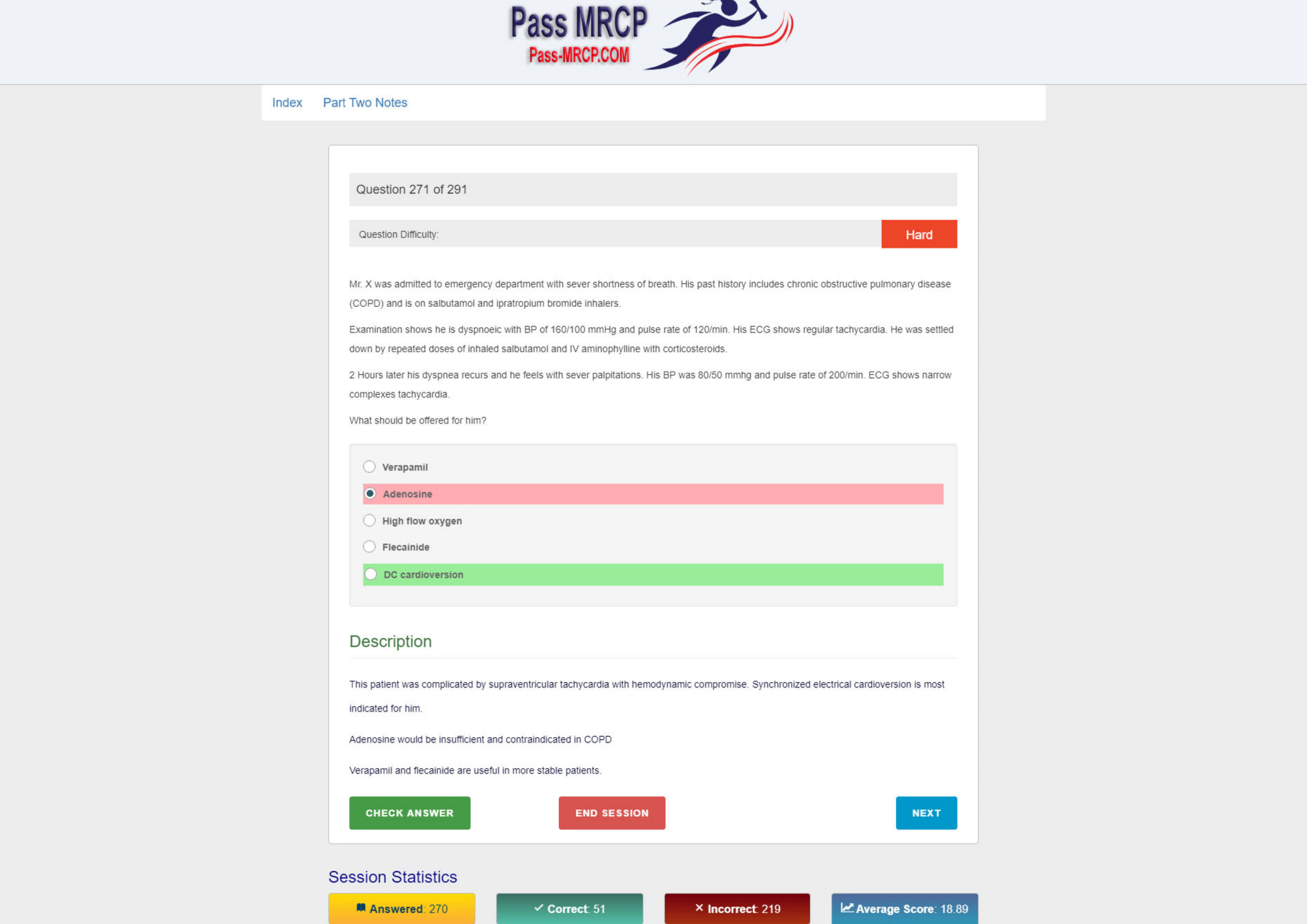
This patient is complaining of infective endocarditis. It is inflammation of the inner tissue of the heart and valves caused by infectious agents.

It is associated with vascular symptoms as conjunctival and intracranial hemorrhage and splinter hemorrhages, renal splenic infarcts.

As he is immune-compromised due to methotrexate and prednisolone, he is prone to systemic fungal infection.

Session Statistics

Answered: 269
✓ **Correct**: 51
✕ **Incorrect**: 218
Average Score: 18.96 %



Question 271 of 291

Question Difficulty: Hard

Mr. X was admitted to emergency department with sever shortness of breath. His past history includes chronic obstructive pulmonary disease (COPD) and is on salbutamol and ipratropium bromide inhalers.

Examination shows he is dyspnoeic with BP of 160/100 mmHg and pulse rate of 120/min. His ECG shows regular tachycardia. He was settled down by repeated doses of inhaled salbutamol and IV aminophylline with corticosteroids.

2 Hours later his dyspnea recurs and he feels with sever palpitations. His BP was 80/50 mmhg and pulse rate of 200/min. ECG shows narrow complexes tachycardia.

What should be offered for him?

- ○ Verapamil
- ● Adenosine
- ○ High flow oxygen
- ○ Flecainide
- ○ DC cardioversion

Description

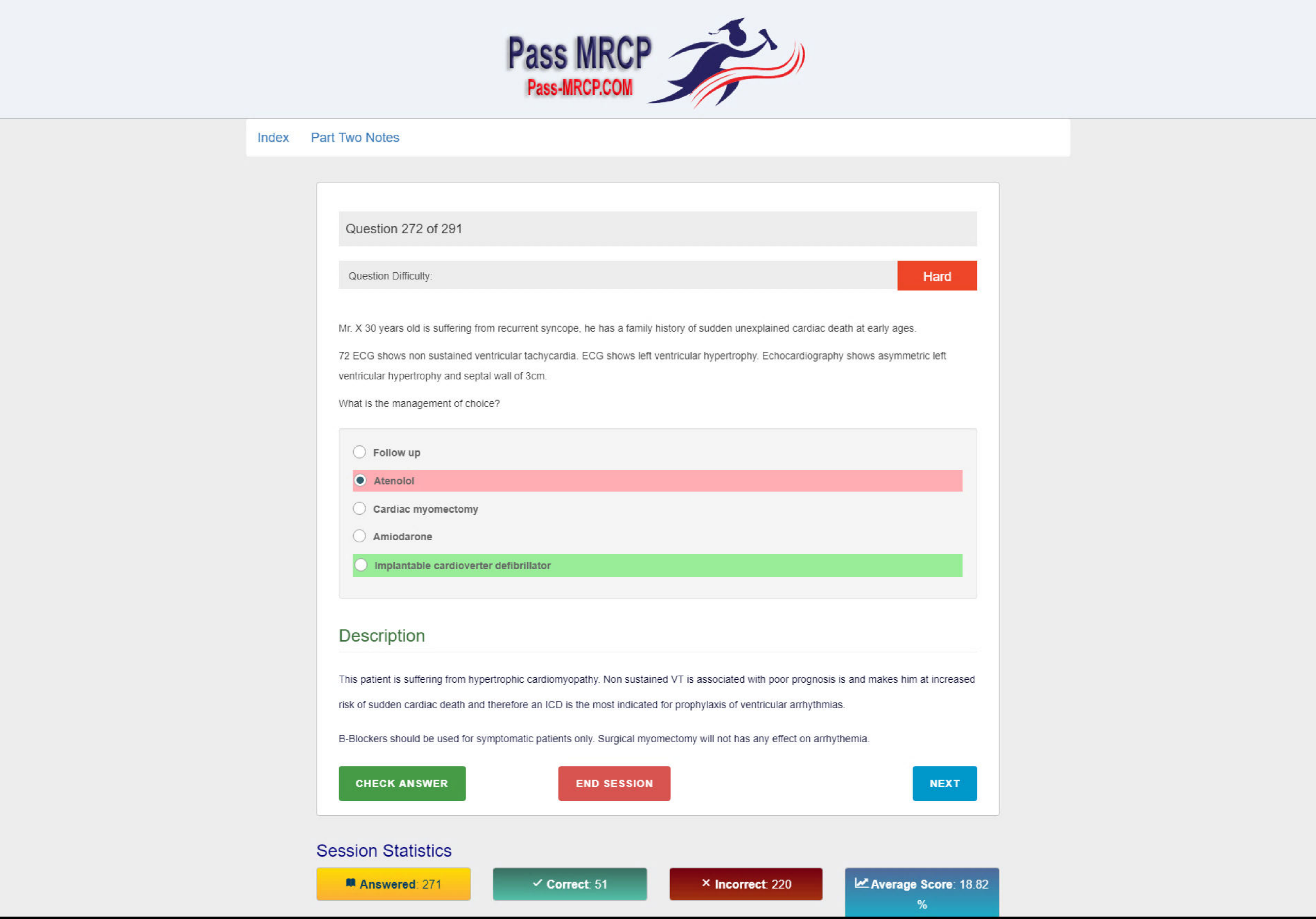
This patient was complicated by supraventricular tachycardia with hemodynamic compromise. Synchronized electrical cardioversion is most indicated for him.

Adenosine would be insufficient and contraindicated in COPD

Verapamil and flecainide are useful in more stable patients.

Session Statistics

Answered: 270
✓ **Correct**: 51
✕ **Incorrect**: 219
Average Score: 18.89



Question 272 of 291

Question Difficulty: Hard

Mr. X 30 years old is suffering from recurrent syncope, he has a family history of sudden unexplained cardiac death at early ages.

72 ECG shows non sustained ventricular tachycardia. ECG shows left ventricular hypertrophy. Echocardiography shows asymmetric left ventricular hypertrophy and septal wall of 3cm.

What is the management of choice?

- ○ Follow up
- ● Atenolol
- ○ Cardiac myomectomy
- ○ Amiodarone
- ○ Implantable cardioverter defibrillator

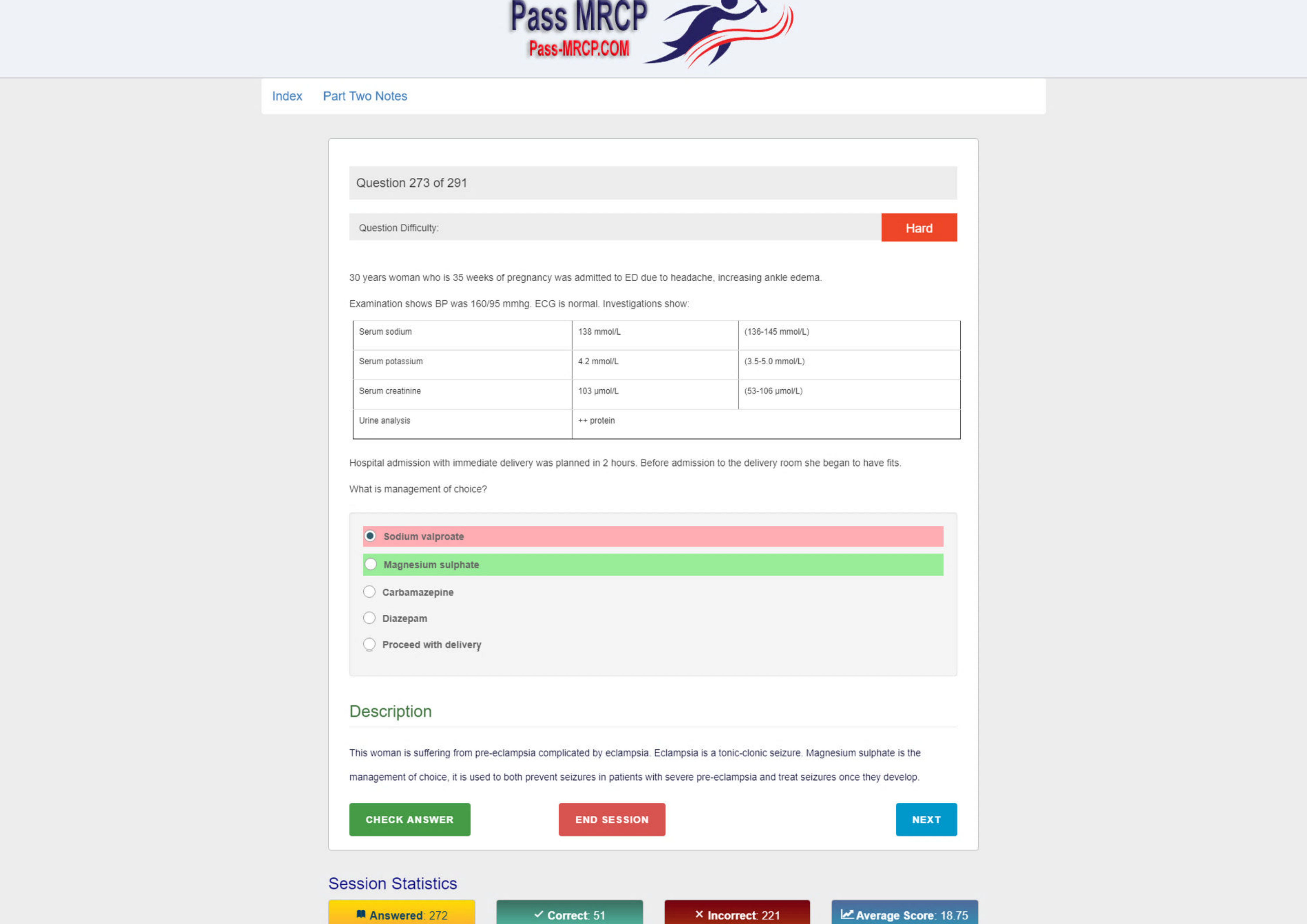
Description

This patient is suffering from hypertrophic cardiomyopathy. Non sustained VT is associated with poor prognosis is and makes him at increased risk of sudden cardiac death and therefore an ICD is the most indicated for prophylaxis of ventricular arrhythmias.

B-Blockers should be used for symptomatic patients only. Surgical myomectomy will not has any effect on arrhythemia.

Session Statistics

Answered: 271
Correct: 51
Incorrect: 220
Average Score: 18.82 %



Question 273 of 291

Question Difficulty: Hard

30 years woman who is 35 weeks of pregnancy was admitted to ED due to headache, increasing ankle edema.

Examination shows BP was 160/95 mmhg. ECG is normal. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	103 µmol/L	(53-106 µmol/L)
Urine analysis	++ protein	

Hospital admission with immediate delivery was planned in 2 hours. Before admission to the delivery room she began to have fits.

What is management of choice?

- ● Sodium valproate
- ○ Magnesium sulphate
- ○ Carbamazepine
- ○ Diazepam
- ○ Proceed with delivery

Description

This woman is suffering from pre-eclampsia complicated by eclampsia. Eclampsia is a tonic-clonic seizure. Magnesium sulphate is the management of choice, it is used to both prevent seizures in patients with severe pre-eclampsia and treat seizures once they develop.

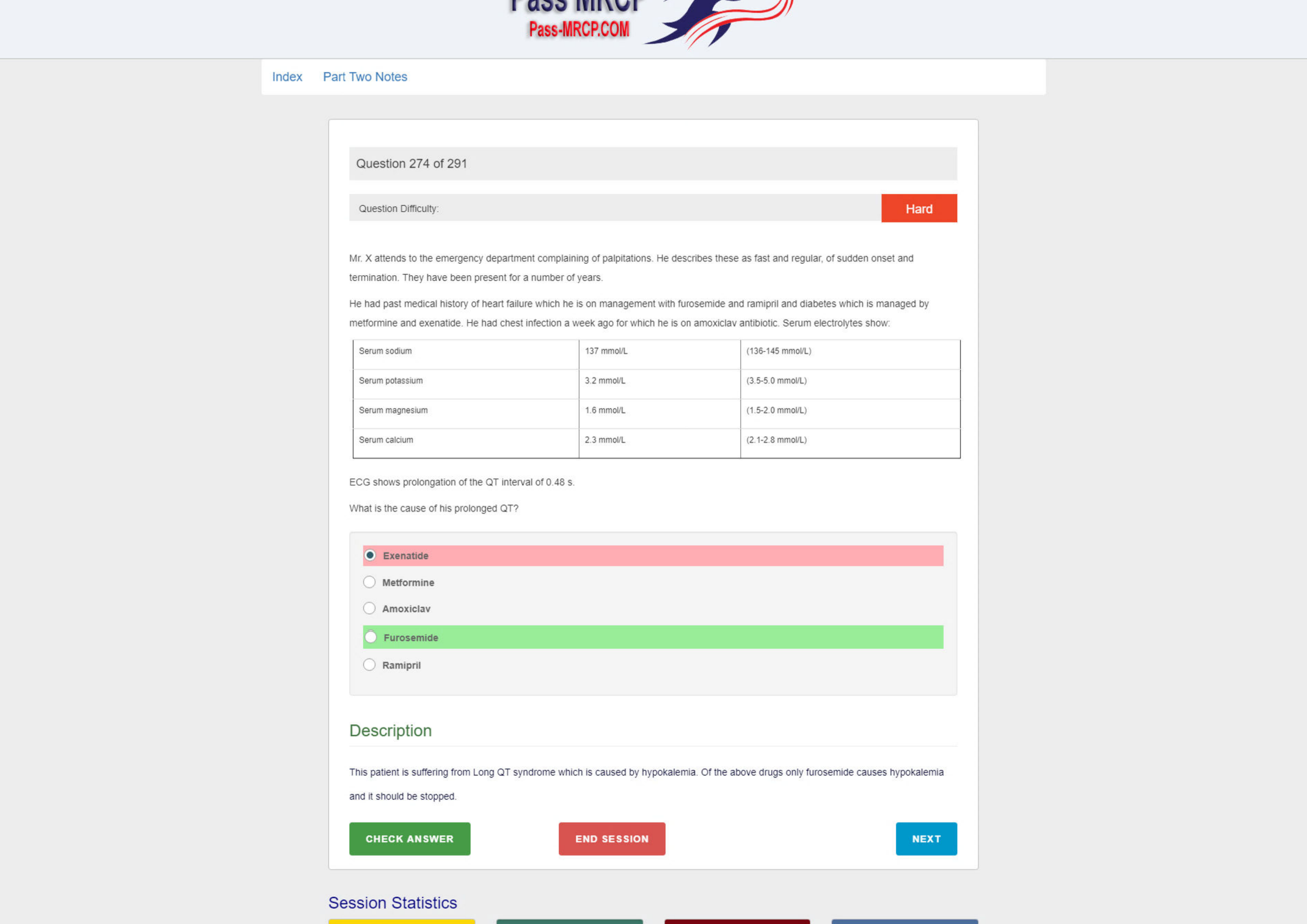
Session Statistics

Answered: 272

✓ Correct: 51

✕ Incorrect: 221

Average Score: 18.75



Question 274 of 291

Question Difficulty: **Hard**

Mr. X attends to the emergency department complaining of palpitations. He describes these as fast and regular, of sudden onset and termination. They have been present for a number of years.

He had past medical history of heart failure which he is on management with furosemide and ramipril and diabetes which is managed by metformine and exenatide. He had chest infection a week ago for which he is on amoxiclav antibiotic. Serum electrolytes show:

Serum sodium	137 mmol/L	(136-145 mmol/L)
Serum potassium	3.2 mmol/L	(3.5-5.0 mmol/L)
Serum magnesium	1.6 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.3 mmol/L	(2.1-2.8 mmol/L)

ECG shows prolongation of the QT interval of 0.48 s.

What is the cause of his prolonged QT?

- ● **Exenatide**
- ○ **Metformine**
- ○ **Amoxiclav**
- ○ **Furosemide**
- ○ **Ramipril**

Description

This patient is suffering from Long QT syndrome which is caused by hypokalemia. Of the above drugs only furosemide causes hypokalemia and it should be stopped.

Session Statistics

Question 275 of 291

Question Difficulty: **Hard**

30 years Mr. X was admitted to the ICU due to increasing breathlessness. He completed in-patient combination chemotherapy for acute myeloid leukemia 6 days ago and was well until this morning

Examination shows he is disorientated, pale and clammy, temperature is 35.6 C, BP 90/40 mmhg, respiratory rate 22 per minute and pulse 130 beats per minute.

CXR and ECG were unremarkable. Other investigations show:

Serum sodium	130 mmol/L	(136-145 mmol/L)
Serum potassium	5.6 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	110 mmol/L	(95-105 mmol/L)
Serum creatinine	125 µmol/L	(53-106 µmol/L)
Hemoglobin	8 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	$1.2\ 10^{9}$ /L	($4.5\text{-}11.0 \times 10^{9}$ /L)
Platelets	41 million/mm3	(150-450 million/mm3)
Serum lactate	65 mmol/L	(1-2 mmol/L)

What is the management of choice?

Serum chloride	110 mmol/L	(95-105 mmol/L)
Serum creatinine	125 µmol/L	(53-106 µmol/L)
Hemoglobin	8 g/dL	(Male: 13.5-17.5 g/dL)
Leukocyte count	$1.2\ 10^{9}$ /L	($4.5\text{-}11.0 \times 10^{9}$ /L)
Platelets	41 million/mm3	(150-450 million/mm3)
Serum lactate	65 mmol/L	(1-2 mmol/L)

What is the management of choice?

- ● **IV Dobutamine infusion**
- ○ **Transfuse packed red cells**
- ○ **IV normal saline**
- ○ **Take cultures from urine and all venous access**
- ○ **Commence broad-spectrum antibiotics**

Description

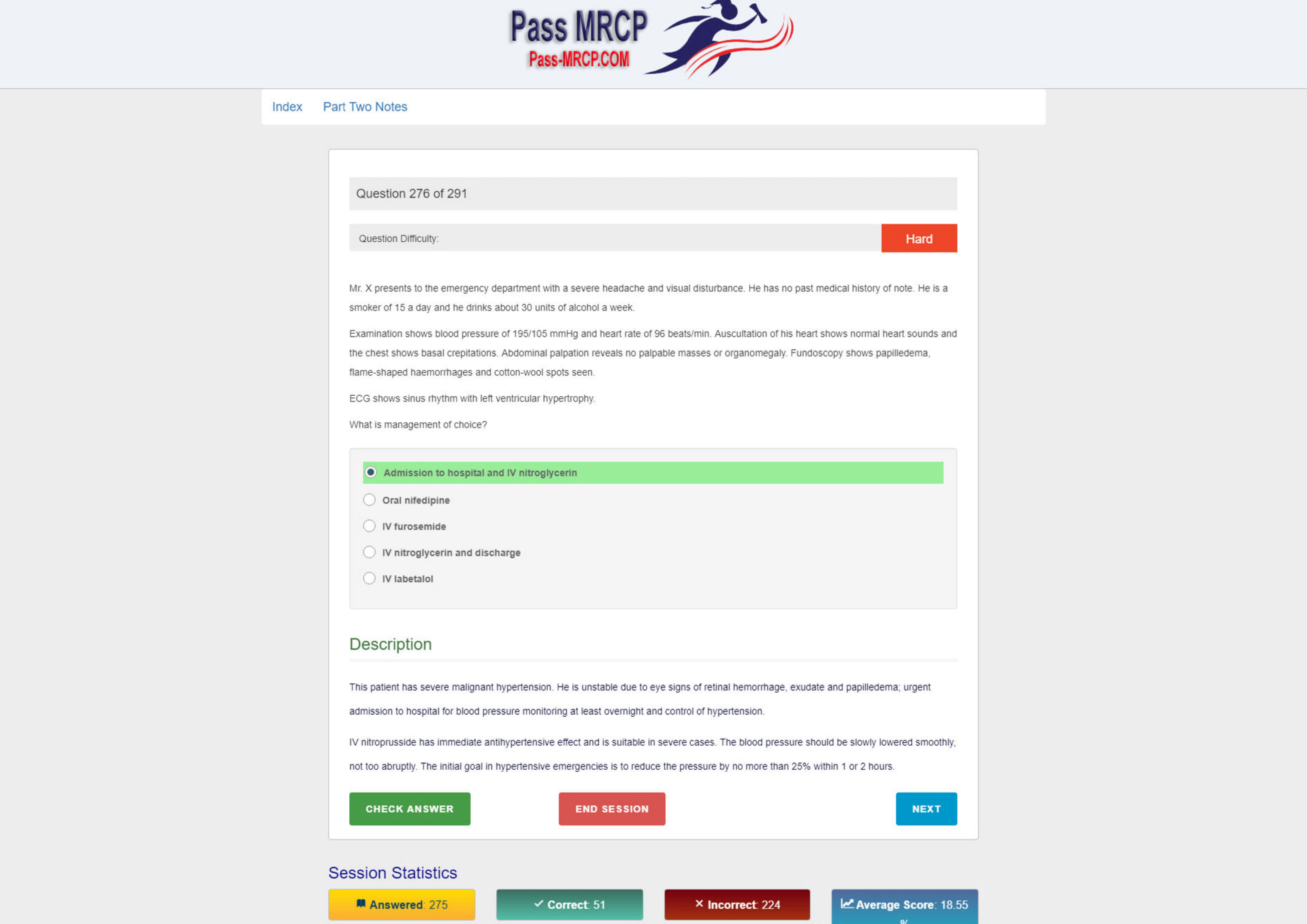
This patient is complaining of septic shock. Septic shock is systemic inflammatory response syndrome (SIRS) secondary to infection causing persistent arterial hypotension despite adequate fluid resuscitation, tissue hypoperfusion manifested by a lactate concentration >50 mmol/L and organ dysfunction as renal failure in this case.

Admission to the hospital with support of respiratory and circulatory function, supplemental oxygen, mechanical ventilation, and volume infusion with normal saline is the main management. Broad-spectrum antibiotics are used after initiation of supportive measures. Vasopressor drugs as norepinephrine, dopamine and dobutamine are used if saline failed to restore normal blood pressure.

CHECK ANSWER   END SESSION   NEXT

Session Statistics

Answered: 274
✓ **Correct**: 51
✕ **Incorrect**: 223
Average Score: 18.61 %



Question 276 of 291

Question Difficulty: Hard

Mr. X presents to the emergency department with a severe headache and visual disturbance. He has no past medical history of note. He is a smoker of 15 a day and he drinks about 30 units of alcohol a week.

Examination shows blood pressure of 195/105 mmHg and heart rate of 96 beats/min. Auscultation of his heart shows normal heart sounds and the chest shows basal crepitations. Abdominal palpation reveals no palpable masses or organomegaly. Fundoscopy shows papilledema, flame-shaped haemorrhages and cotton-wool spots seen.

ECG shows sinus rhythm with left ventricular hypertrophy.

What is management of choice?

● **Admission to hospital and IV nitroglycerin**
○ **Oral nifedipine**
○ **IV furosemide**
○ **IV nitroglycerin and discharge**
○ **IV labetalol**

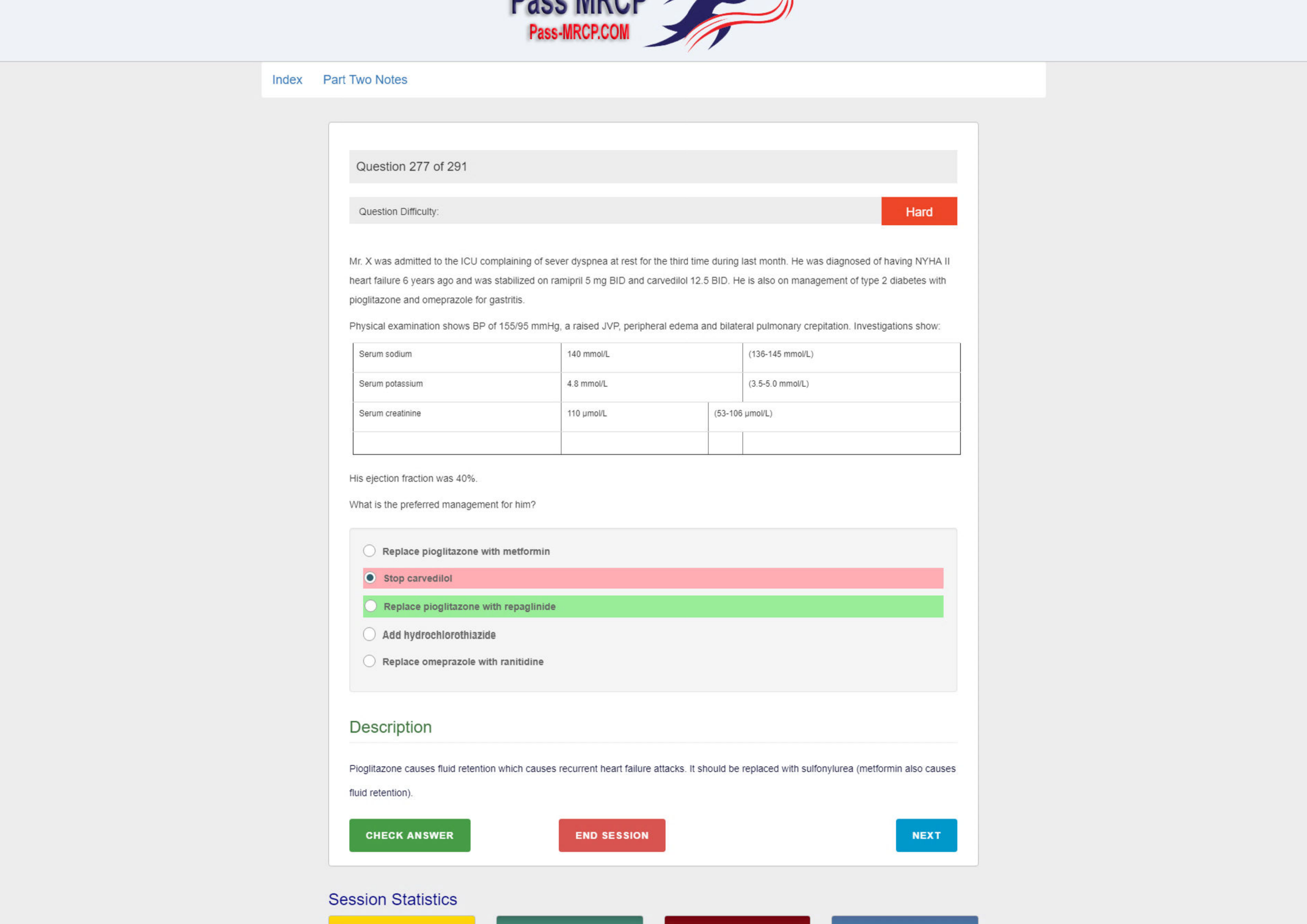
Description

This patient has severe malignant hypertension. He is unstable due to eye signs of retinal hemorrhage, exudate and papilledema; urgent admission to hospital for blood pressure monitoring at least overnight and control of hypertension.

IV nitroprusside has immediate antihypertensive effect and is suitable in severe cases. The blood pressure should be slowly lowered smoothly, not too abruptly. The initial goal in hypertensive emergencies is to reduce the pressure by no more than 25% within 1 or 2 hours.

Session Statistics

Answered: 275
✓ **Correct**: 51
✕ **Incorrect**: 224
Average Score: 18.55



Question 277 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the ICU complaining of sever dyspnea at rest for the third time during last month. He was diagnosed of having NYHA II heart failure 6 years ago and was stabilized on ramipril 5 mg BID and carvedilol 12.5 BID. He is also on management of type 2 diabetes with pioglitazone and omeprazole for gastritis.

Physical examination shows BP of 155/95 mmHg, a raised JVP, peripheral edema and bilateral pulmonary crepitation. Investigations show:

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4.8 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	110 μmol/L	(53-106 μmol/L)

His ejection fraction was 40%.

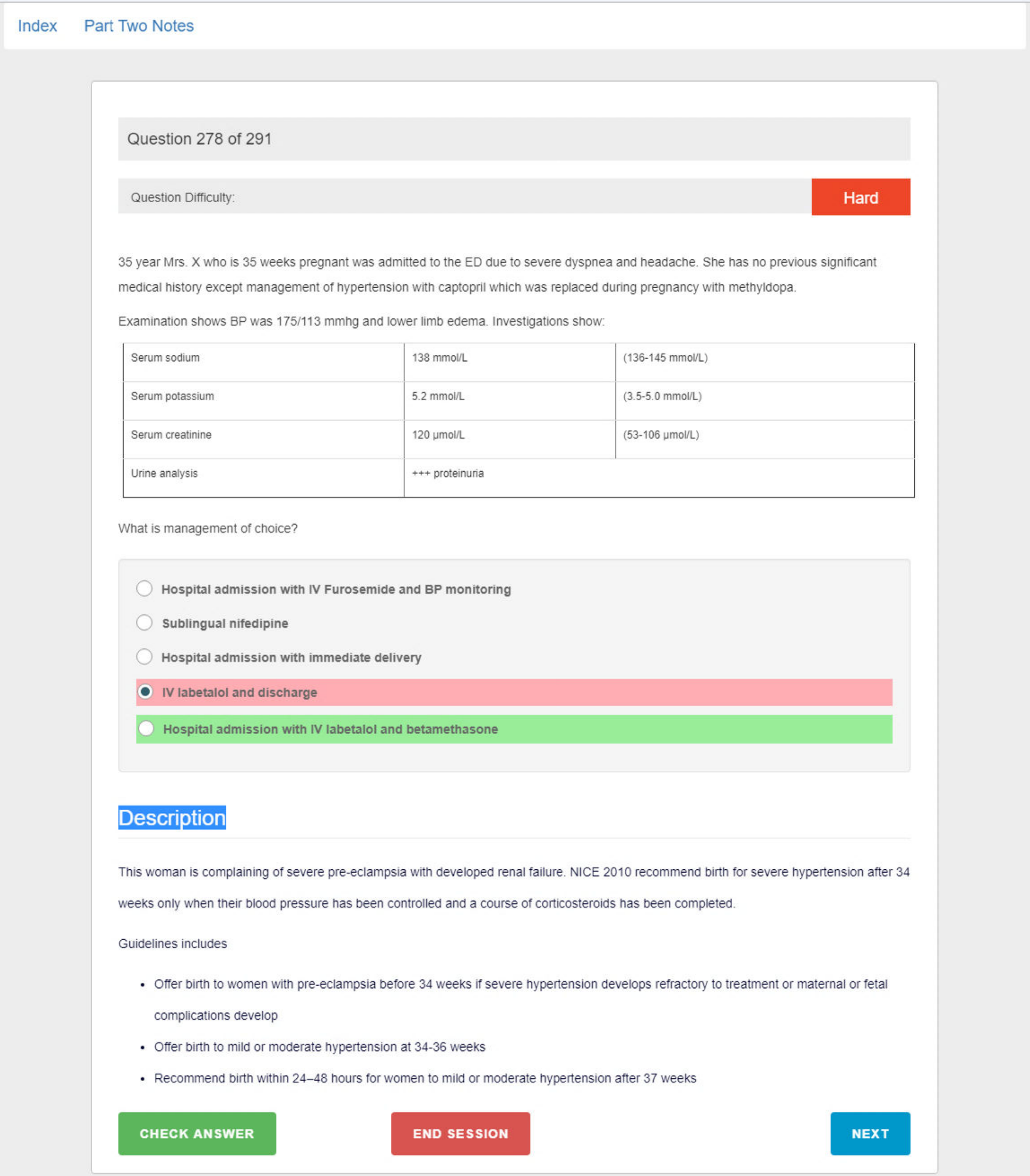
What is the preferred management for him?

- ○ **Replace pioglitazone with metformin**
- ● **Stop carvedilol**
- ○ **Replace pioglitazone with repaglinide**
- ○ **Add hydrochlorothiazide**
- ○ **Replace omeprazole with ranitidine**

Description

Pioglitazone causes fluid retention which causes recurrent heart failure attacks. It should be replaced with sulfonylurea (metformin also causes fluid retention).

Session Statistics



Question 278 of 291

Question Difficulty: **Hard**

35 year Mrs. X who is 35 weeks pregnant was admitted to the ED due to severe dyspnea and headache. She has no previous significant medical history except management of hypertension with captopril which was replaced during pregnancy with methyldopa.

Examination shows BP was 175/113 mmhg and lower limb edema. Investigations show:

Serum sodium	138 mmol/L	(136-145 mmol/L)
Serum potassium	5.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	120 µmol/L	(53-106 µmol/L)
Urine analysis	+++ proteinuria	

What is management of choice?

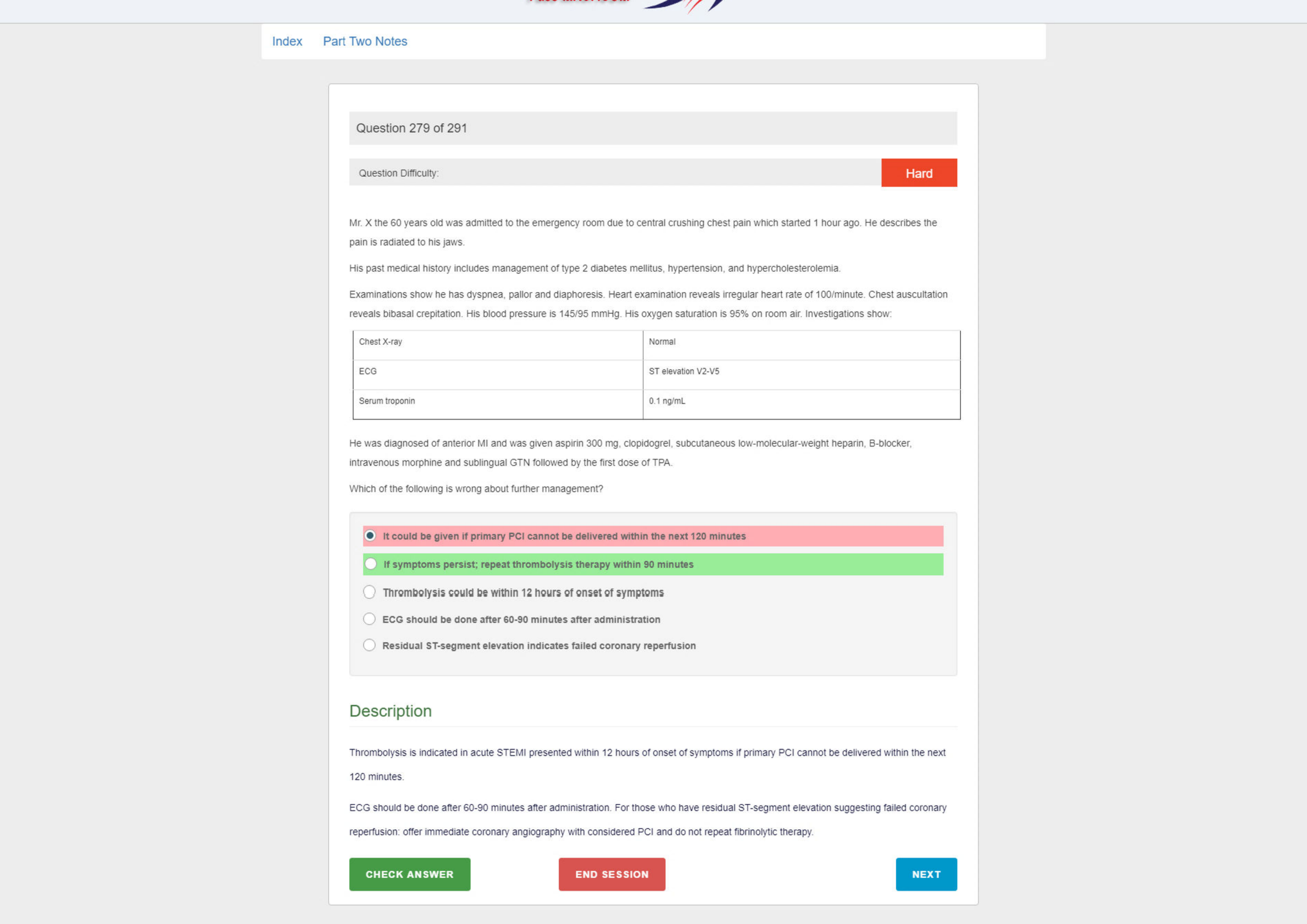
○ **Hospital admission with IV Furosemide and BP monitoring**
○ **Sublingual nifedipine**
○ **Hospital admission with immediate delivery**
● **IV labetalol and discharge**
○ **Hospital admission with IV labetalol and betamethasone**

Description

This woman is complaining of severe pre-eclampsia with developed renal failure. NICE 2010 recommend birth for severe hypertension after 34 weeks only when their blood pressure has been controlled and a course of corticosteroids has been completed.

Guidelines includes

- Offer birth to women with pre-eclampsia before 34 weeks if severe hypertension develops refractory to treatment or maternal or fetal complications develop
- Offer birth to mild or moderate hypertension at 34-36 weeks
- Recommend birth within 24–48 hours for women to mild or moderate hypertension after 37 weeks



Question 279 of 291

Question Difficulty: **Hard**

Mr. X the 60 years old was admitted to the emergency room due to central crushing chest pain which started 1 hour ago. He describes the pain is radiated to his jaws.

His past medical history includes management of type 2 diabetes mellitus, hypertension, and hypercholesterolemia.

Examinations show he has dyspnea, pallor and diaphoresis. Heart examination reveals irregular heart rate of 100/minute. Chest auscultation reveals bibasal crepitation. His blood pressure is 145/95 mmHg. His oxygen saturation is 95% on room air. Investigations show:

Chest X-ray	Normal
ECG	ST elevation V2-V5
Serum troponin	0.1 ng/mL

He was diagnosed of anterior MI and was given aspirin 300 mg, clopidogrel, subcutaneous low-molecular-weight heparin, B-blocker, intravenous morphine and sublingual GTN followed by the first dose of TPA.

Which of the following is wrong about further management?

- ● **It could be given if primary PCI cannot be delivered within the next 120 minutes**
- ○ **If symptoms persist; repeat thrombolysis therapy within 90 minutes**
- ○ **Thrombolysis could be within 12 hours of onset of symptoms**
- ○ **ECG should be done after 60-90 minutes after administration**
- ○ **Residual ST-segment elevation indicates failed coronary reperfusion**

Description

Thrombolysis is indicated in acute STEMI presented within 12 hours of onset of symptoms if primary PCI cannot be delivered within the next 120 minutes.

ECG should be done after 60-90 minutes after administration. For those who have residual ST-segment elevation suggesting failed coronary reperfusion: offer immediate coronary angiography with considered PCI and do not repeat fibrinolytic therapy.

Question 280 of 291

Question Difficulty: **Hard**

Mr. X was referred to cardiology clinic he is complaining of sudden severe right leg pain. He had previous history of DVT and pulmonary embolism and he is on chemotherapy management of lung cancer diagnosed 4 months previously.

Examination shows right leg is swollen with pitting edema and collateral superficial non-varicose veins. Leg vein ultrasound scan was requested and came back negative for DVT.

What is the most appropriate intervention?

● **Start Aspirin**
○ **CT angiography of lower legs**
○ **Start LMWH**
○ **D-dimer**
○ **Repeat proximal leg vein ultrasound scan in 24 hours**

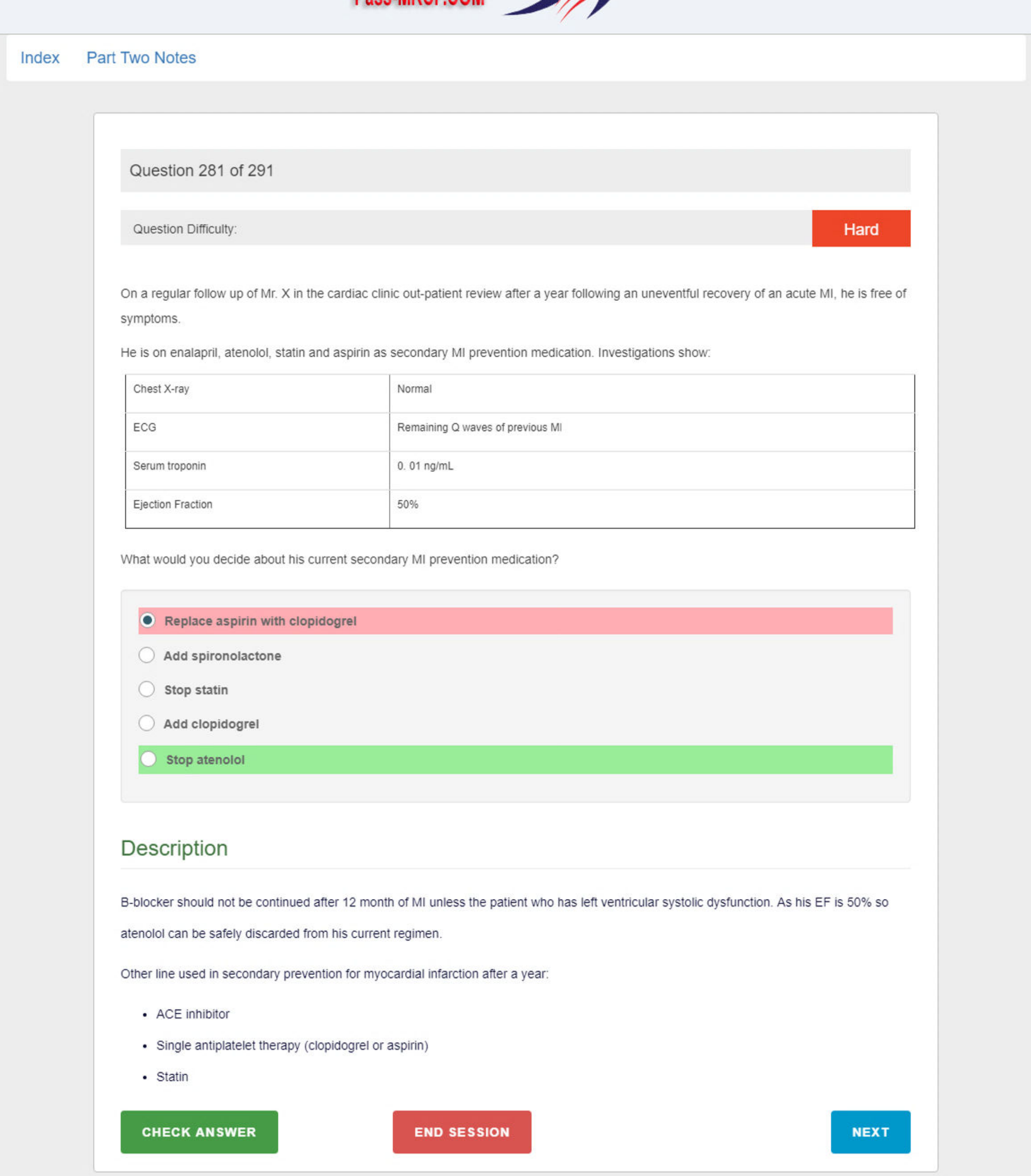
Description

If DVT is suspected, NICE 2012 recommend the use of the two level DVT Wells score to estimate the clinical probability of DVT, if DVT is likely (score of 2 (he has sore of 5) request a proximal leg vein ultrasound scan carried out within 4 hours, if the result is negative, request a D-dimer test.

Repeat the proximal leg vein ultrasound scan 6-8 days later for all patients with a positive D-dimer test and a negative proximal leg vein ultrasound scan.

Two-level DVT Wells score:

Clinical feature	Points
Active cancer or within 6 months of treatment	1
Paralysis, paresis or recent plaster immobilization of the lower extremities	1
Recently bedridden for 3 days or more or major surgery within 12 weeks	1
Localized tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
Calf swelling at least 3 cm larger than asymptomatic side	1
Pitting edema confined to the symptomatic leg	1
Collateral superficial veins (non-varicose)	1
Previously documented DVT	1



Question 281 of 291

Question Difficulty: **Hard**

On a regular follow up of Mr. X in the cardiac clinic out-patient review after a year following an uneventful recovery of an acute MI, he is free of symptoms.

He is on enalapril, atenolol, statin and aspirin as secondary MI prevention medication. Investigations show:

Chest X-ray	Normal
ECG	Remaining Q waves of previous MI
Serum troponin	0. 01 ng/mL
Ejection Fraction	50%

What would you decide about his current secondary MI prevention medication?

- ● **Replace aspirin with clopidogrel**
- ○ **Add spironolactone**
- ○ **Stop statin**
- ○ **Add clopidogrel**
- ○ **Stop atenolol**

Description

B-blocker should not be continued after 12 month of MI unless the patient who has left ventricular systolic dysfunction. As his EF is 50% so atenolol can be safely discarded from his current regimen.

Other line used in secondary prevention for myocardial infarction after a year:

- ACE inhibitor
- Single antiplatelet therapy (clopidogrel or aspirin)
- Statin

Question 282 of 291

Question Difficulty: Hard

Mr. X was diagnosed of having recurrent atrial fibrillation. He recently had runs of AF persistently over the past 72 hours. He was started with atenolol in combination with diltiazem without any response.

He was started on amiodarone and referred for electrical cardioversion which was planned after 4 weeks and managed to restore his heart rhythm.

What is suitable management after cardioversion?

- ● **No further drug needed**
- ○ **Continue amiodarone for 12 months**
- ○ **Continue monitoring**
- ○ **Start atenolol for life long**
- ○ **Start warfarin for life long**

Description

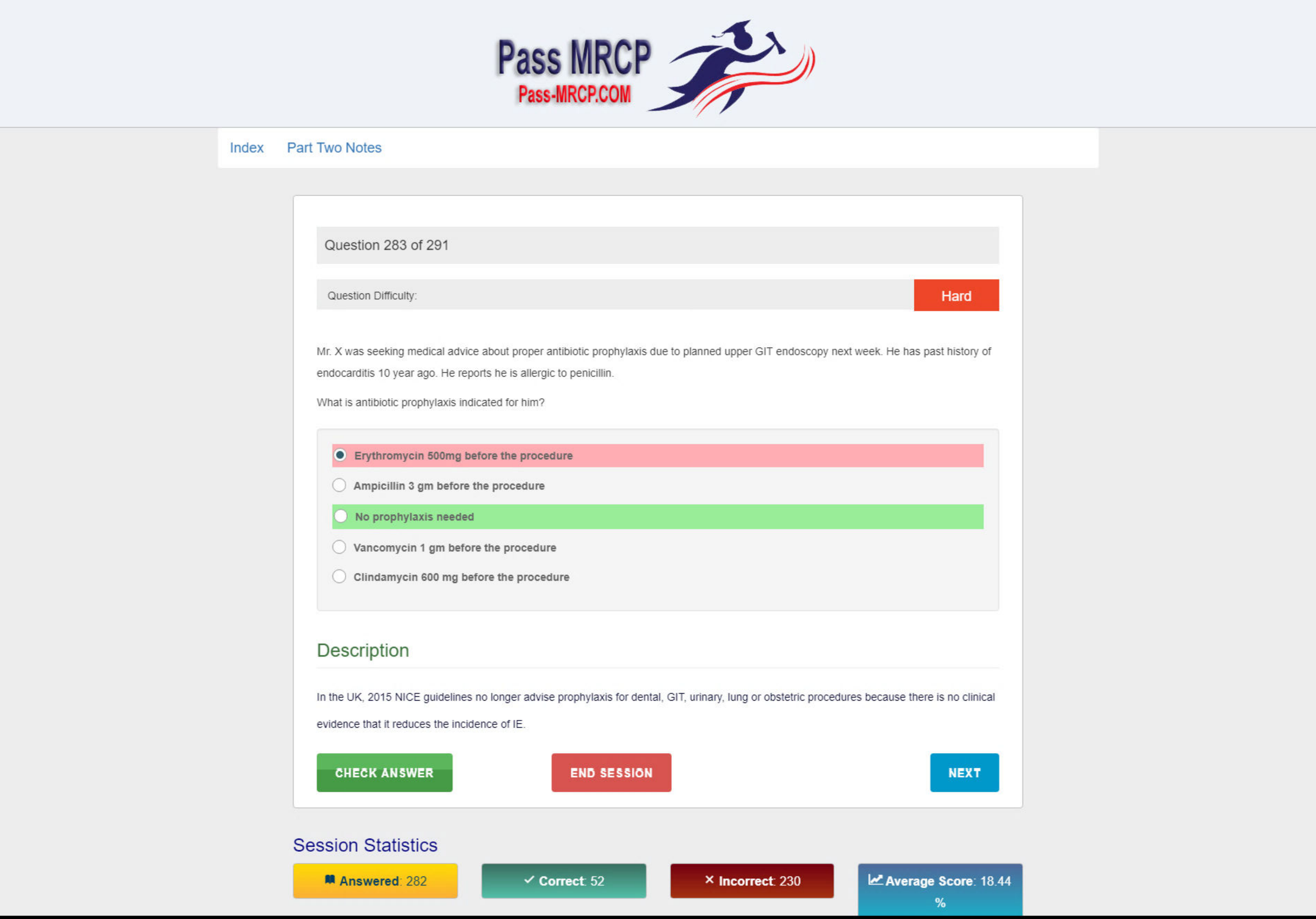
Rhythm control includes pharmacological and/or electrical rhythm control, they are indicated for atrial fibrillation patient whose symptoms continue after heart rate has been controlled or for whom a rate-control strategy has not been successful.

For people having cardioversion for atrial fibrillation that have persisted for longer than 48 hours, offer electrical (rather than pharmacological) cardioversion. Consider amiodarone therapy starting 4 weeks before and continuing for up to 12 months after electrical cardioversion to maintain sinus rhythm.

CHECK ANSWER END SESSION NEXT

Session Statistics

Answered: 281 ✓ **Correct**: 52 × **Incorrect**: 229 **Average Score**: 18.51 %



Question 283 of 291

Question Difficulty: **Hard**

Mr. X was seeking medical advice about proper antibiotic prophylaxis due to planned upper GIT endoscopy next week. He has past history of endocarditis 10 year ago. He reports he is allergic to penicillin.

What is antibiotic prophylaxis indicated for him?

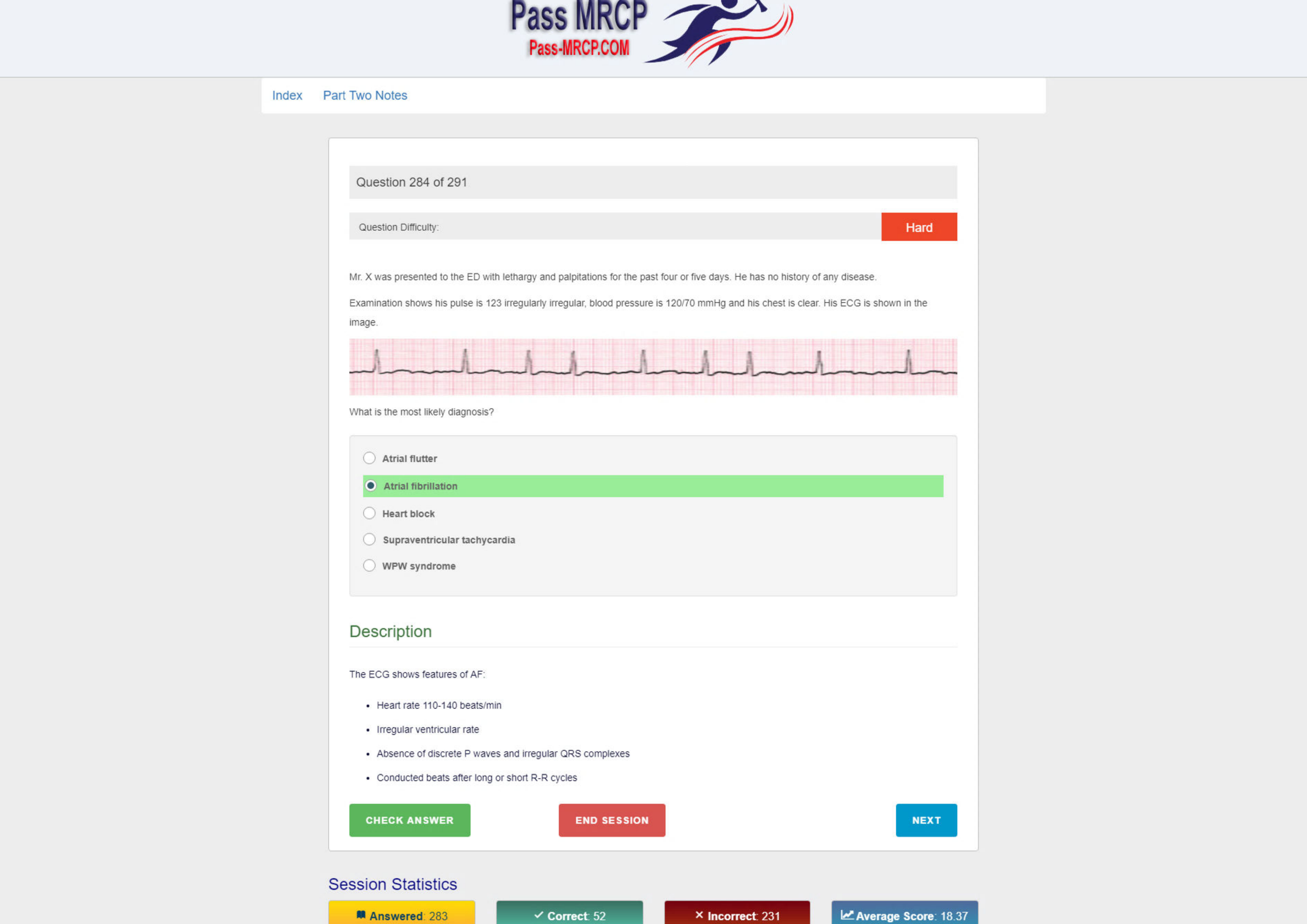
- ● **Erythromycin 500mg before the procedure**
- ○ **Ampicillin 3 gm before the procedure**
- ○ **No prophylaxis needed**
- ○ **Vancomycin 1 gm before the procedure**
- ○ **Clindamycin 600 mg before the procedure**

Description

In the UK, 2015 NICE guidelines no longer advise prophylaxis for dental, GIT, urinary, lung or obstetric procedures because there is no clinical evidence that it reduces the incidence of IE.

Session Statistics

Answered: 282
✓ **Correct**: 52
✕ **Incorrect**: 230
Average Score: 18.44 %



Question 284 of 291

Question Difficulty: **Hard**

Mr. X was presented to the ED with lethargy and palpitations for the past four or five days. He has no history of any disease.

Examination shows his pulse is 123 irregularly irregular, blood pressure is 120/70 mmHg and his chest is clear. His ECG is shown in the image.

What is the most likely diagnosis?

○ **Atrial flutter**
● **Atrial fibrillation**
○ **Heart block**
○ **Supraventricular tachycardia**
○ **WPW syndrome**

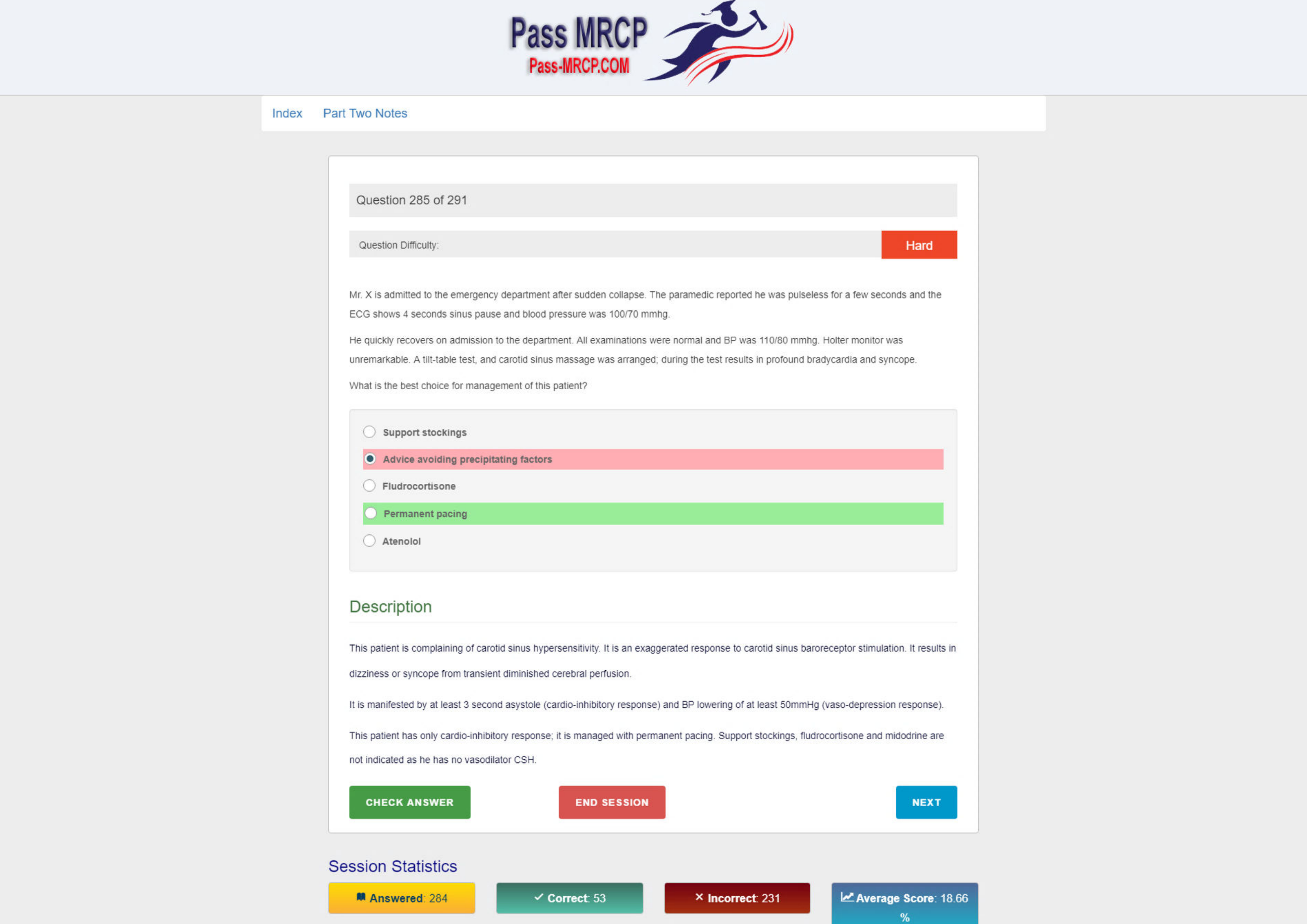
Description

The ECG shows features of AF:

- Heart rate 110-140 beats/min
- Irregular ventricular rate
- Absence of discrete P waves and irregular QRS complexes
- Conducted beats after long or short R-R cycles

Session Statistics

Answered: 283
Correct: 52
Incorrect: 231
Average Score: 18.37



Question 285 of 291

Question Difficulty: Hard

Mr. X is admitted to the emergency department after sudden collapse. The paramedic reported he was pulseless for a few seconds and the ECG shows 4 seconds sinus pause and blood pressure was 100/70 mmhg.

He quickly recovers on admission to the department. All examinations were normal and BP was 110/80 mmhg. Holter monitor was unremarkable. A tilt-table test, and carotid sinus massage was arranged; during the test results in profound bradycardia and syncope.

What is the best choice for management of this patient?

○ Support stockings
● Advice avoiding precipitating factors
○ Fludrocortisone
○ Permanent pacing
○ Atenolol

Description

This patient is complaining of carotid sinus hypersensitivity. It is an exaggerated response to carotid sinus baroreceptor stimulation. It results in dizziness or syncope from transient diminished cerebral perfusion.

It is manifested by at least 3 second asystole (cardio-inhibitory response) and BP lowering of at least 50mmHg (vaso-depression response).

This patient has only cardio-inhibitory response; it is managed with permanent pacing. Support stockings, fludrocortisone and midodrine are not indicated as he has no vasodilator CSH.

Session Statistics

Answered: 284
✓ Correct: 53
✕ Incorrect: 231
Average Score: 18.66 %

Index Part Two Notes

Question 286 of 291

Question Difficulty: Average

32 years Mr. X is admitted to ICU due to sudden chest pain followed by blackout when he was on a game of squash. He had previous 3 similar occasions last year. He has no past history of any disease.

He smokes five cigarettes per day and drinks 25 units of alcohol per week. His father died suddenly on the age of 40 years due to chest pain.

Cardiac examination shows jerky pulse and double apex beat and ejection systolic murmur, Jugular venous pulse shows prominent a wave. Other systems were normal. His ECG shows left ventricular hypertrophy.

What is the investigation should be done for diagnosis?

- ○ **Tilt table**
- ○ **Genetic testing**
- ● **Two-dimensional (2-D) echocardiography**
- ○ **Exercise ECG**
- ○ **Transesophageal echocardiography**

Description

This young age male complaints and physical findings are compatible with the hypertrophic cardiomyopathy as a diagnosis.

It is usually asymptomatic until the patient develops symptoms which include dyspnea, angina, syncope due to arrhythmias, heart failure and sudden death especially in young ages.

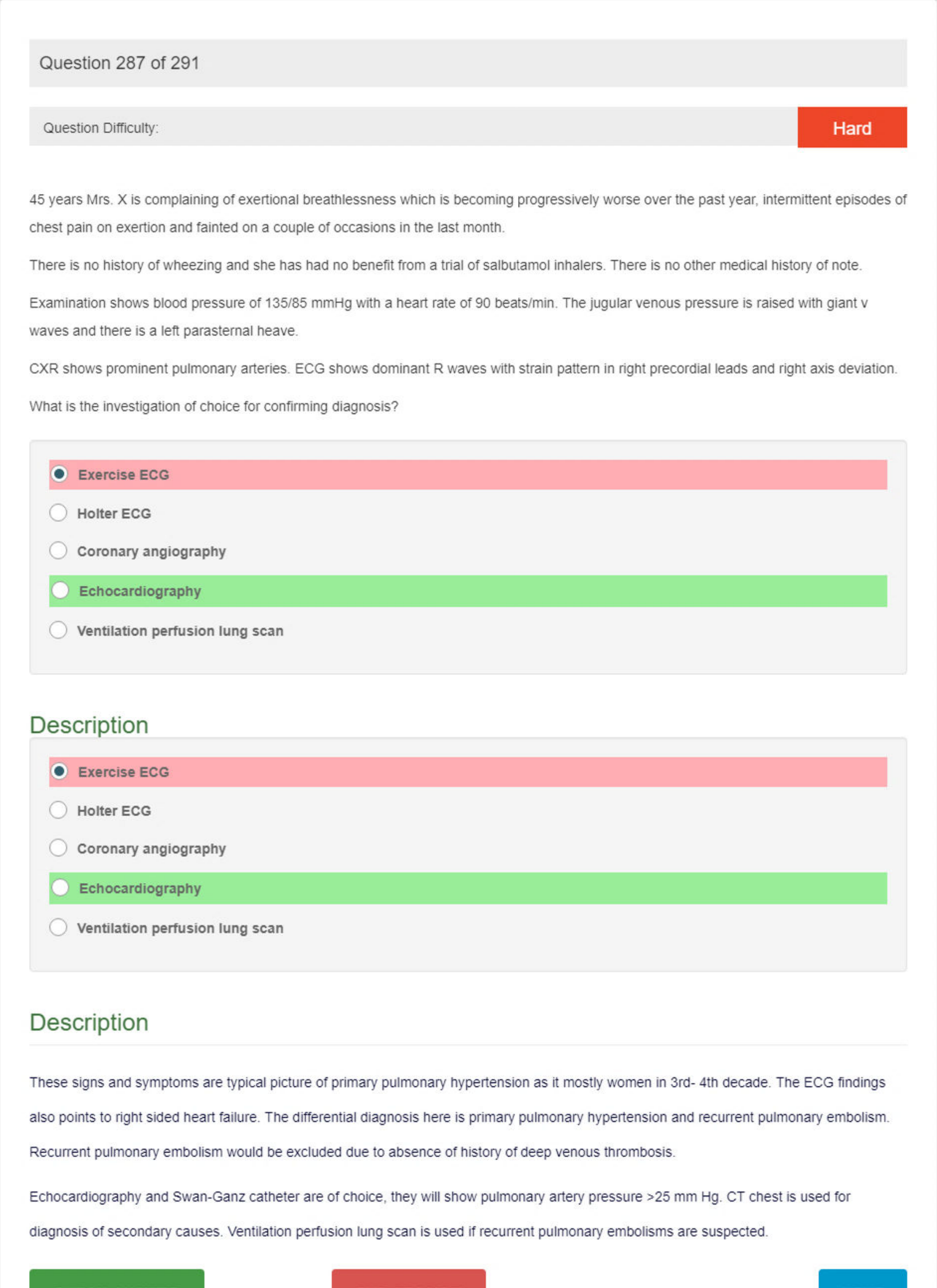
Two-dimensional (2-D) echocardiography is the main diagnostic procedure; it shows mitral regurgitation, systolic anterior motion of the anterior mitral valve leaflet, asymmetric hypertrophy and septal hypertrophy.

Transthoracic echocardiography is superior to transesophageal echocardiography.

Vasovagal syncope is not associated with arrhythmia, and heart examination is usually normal so tilt table is not indicated.

Exercise ECG is not indicated as features are not incompatible with anginal pain.

CHECK ANSWER END SESSION NEXT



Question 287 of 291

Question Difficulty: **Hard**

45 years Mrs. X is complaining of exertional breathlessness which is becoming progressively worse over the past year, intermittent episodes of chest pain on exertion and fainted on a couple of occasions in the last month.

There is no history of wheezing and she has had no benefit from a trial of salbutamol inhalers. There is no other medical history of note.

Examination shows blood pressure of 135/85 mmHg with a heart rate of 90 beats/min. The jugular venous pressure is raised with giant v waves and there is a left parasternal heave.

CXR shows prominent pulmonary arteries. ECG shows dominant R waves with strain pattern in right precordial leads and right axis deviation.

What is the investigation of choice for confirming diagnosis?

- ● **Exercise ECG**
- ○ **Holter ECG**
- ○ **Coronary angiography**
- ○ **Echocardiography**
- ○ **Ventilation perfusion lung scan**

Description

- ● **Exercise ECG**
- ○ **Holter ECG**
- ○ **Coronary angiography**
- ○ **Echocardiography**
- ○ **Ventilation perfusion lung scan**

Description

These signs and symptoms are typical picture of primary pulmonary hypertension as it mostly women in 3rd- 4th decade. The ECG findings also points to right sided heart failure. The differential diagnosis here is primary pulmonary hypertension and recurrent pulmonary embolism. Recurrent pulmonary embolism would be excluded due to absence of history of deep venous thrombosis.

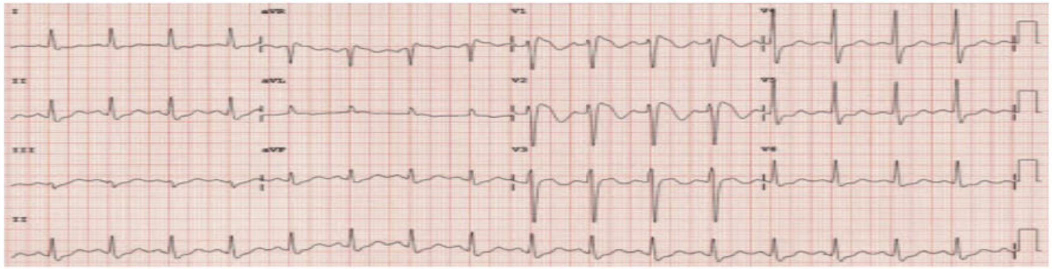
Echocardiography and Swan-Ganz catheter are of choice, they will show pulmonary artery pressure >25 mm Hg. CT chest is used for diagnosis of secondary causes. Ventilation perfusion lung scan is used if recurrent pulmonary embolisms are suspected.

Question 288 of 291

Question Difficulty: Hard

25 years Mr. X is complaining of 2 year history of syncope of unknown cause. He has no history of any disease and not a drug or alcohol addict. There is no known family history of heart disease but he reports that his father and grandfather had died in their sleep with no cause found.

Investigations show normal echocardiogram, tilt test and his ECG is shown in the image.



What is the most likely diagnosis?

○ Arrhythmogenic right ventricular cardiomyopathy
● WPW Syndrome
○ Romano Ward Syndrome
○ Hypertrophic Cardiomyopathy
○ Brugada syndrome

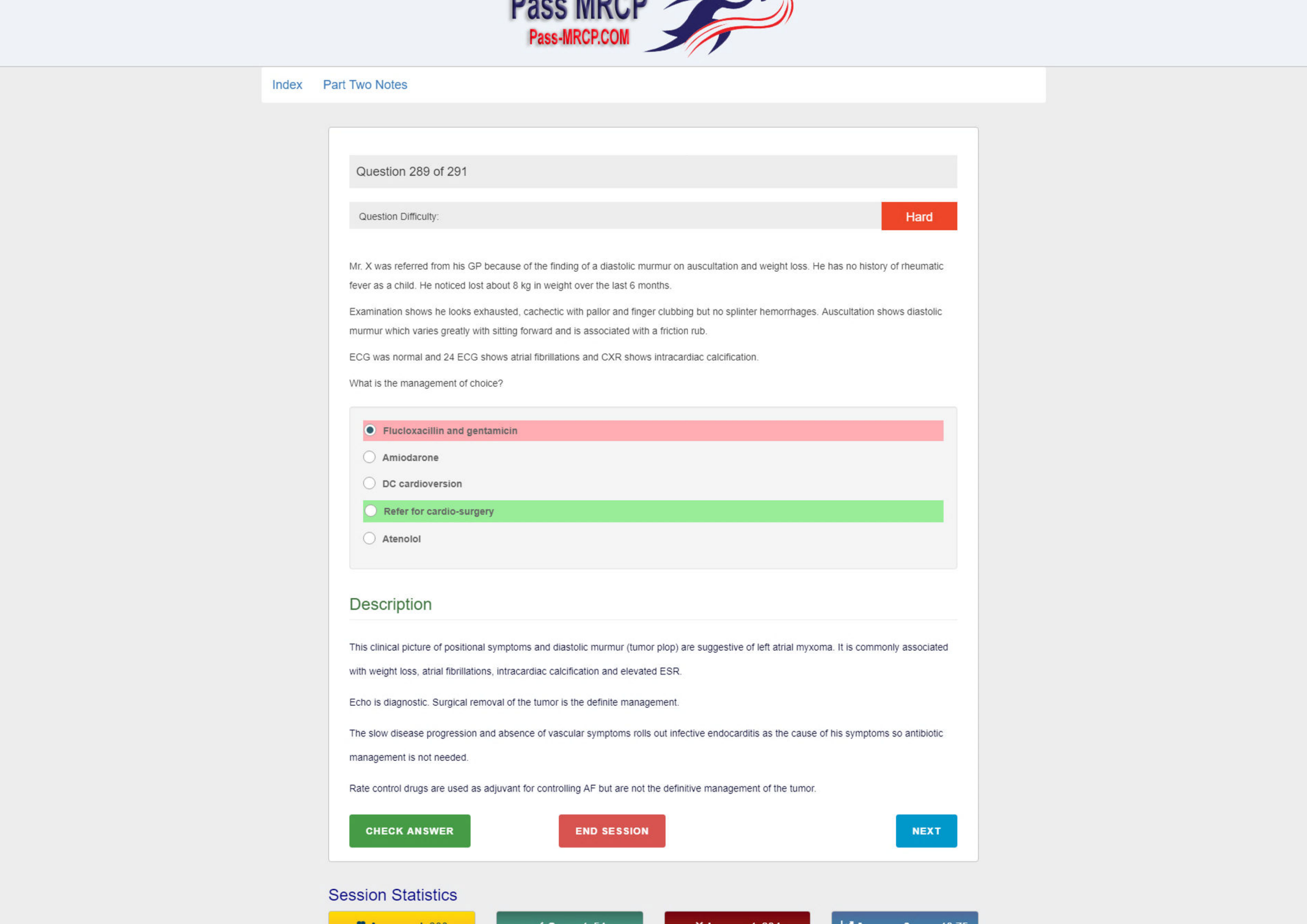
Description

Brugada syndrome is an autosomal dominant cardiovascular disease with may present with sudden cardiac death. It is more common in Asians.

ECG shows convex ST elevation in V1-V3 and partial right bundle branch block.

CHECK ANSWER END SESSION NEXT

Session Statistics



Question 289 of 291

Question Difficulty: Hard

Mr. X was referred from his GP because of the finding of a diastolic murmur on auscultation and weight loss. He has no history of rheumatic fever as a child. He noticed lost about 8 kg in weight over the last 6 months.

Examination shows he looks exhausted, cachectic with pallor and finger clubbing but no splinter hemorrhages. Auscultation shows diastolic murmur which varies greatly with sitting forward and is associated with a friction rub.

ECG was normal and 24 ECG shows atrial fibrillations and CXR shows intracardiac calcification.

What is the management of choice?

- ● **Flucloxacillin and gentamicin**
- ○ **Amiodarone**
- ○ **DC cardioversion**
- ○ **Refer for cardio-surgery**
- ○ **Atenolol**

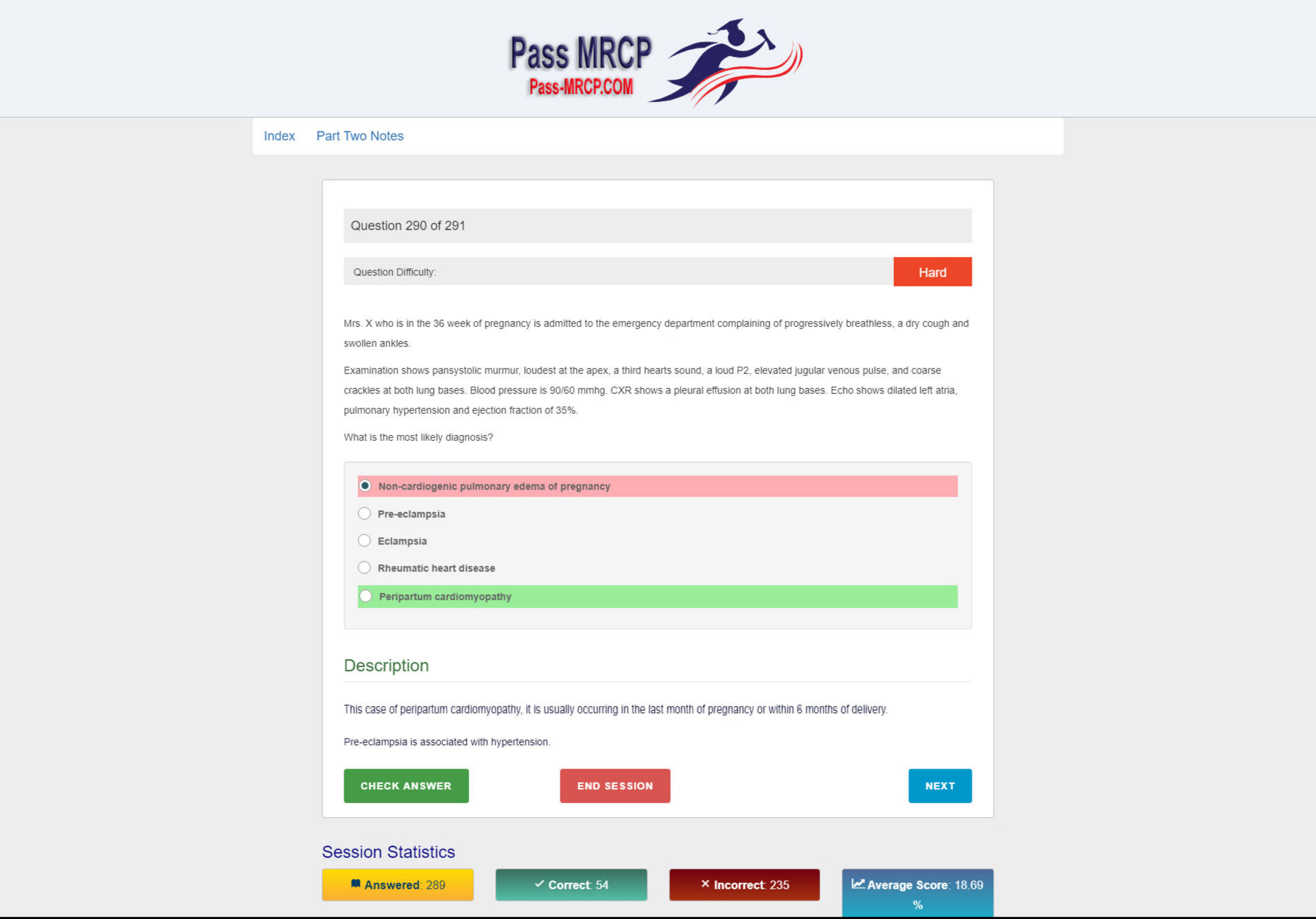
Description

This clinical picture of positional symptoms and diastolic murmur (tumor plop) are suggestive of left atrial myxoma. It is commonly associated with weight loss, atrial fibrillations, intracardiac calcification and elevated ESR.

Echo is diagnostic. Surgical removal of the tumor is the definite management.

The slow disease progression and absence of vascular symptoms rolls out infective endocarditis as the cause of his symptoms so antibiotic management is not needed.

Rate control drugs are used as adjuvant for controlling AF but are not the definitive management of the tumor.



Question 290 of 291

Question Difficulty: **Hard**

Mrs. X who is in the 36 week of pregnancy is admitted to the emergency department complaining of progressively breathless, a dry cough and swollen ankles.

Examination shows pansystolic murmur, loudest at the apex, a third hearts sound, a loud P2, elevated jugular venous pulse, and coarse crackles at both lung bases. Blood pressure is 90/60 mmhg. CXR shows a pleural effusion at both lung bases. Echo shows dilated left atria, pulmonary hypertension and ejection fraction of 35%.

What is the most likely diagnosis?

- ● **Non-cardiogenic pulmonary edema of pregnancy**
- ○ **Pre-eclampsia**
- ○ **Eclampsia**
- ○ **Rheumatic heart disease**
- ○ **Peripartum cardiomyopathy**

Description

This case of peripartum cardiomyopathy, it is usually occurring in the last month of pregnancy or within 6 months of delivery.

Pre-eclampsia is associated with hypertension.

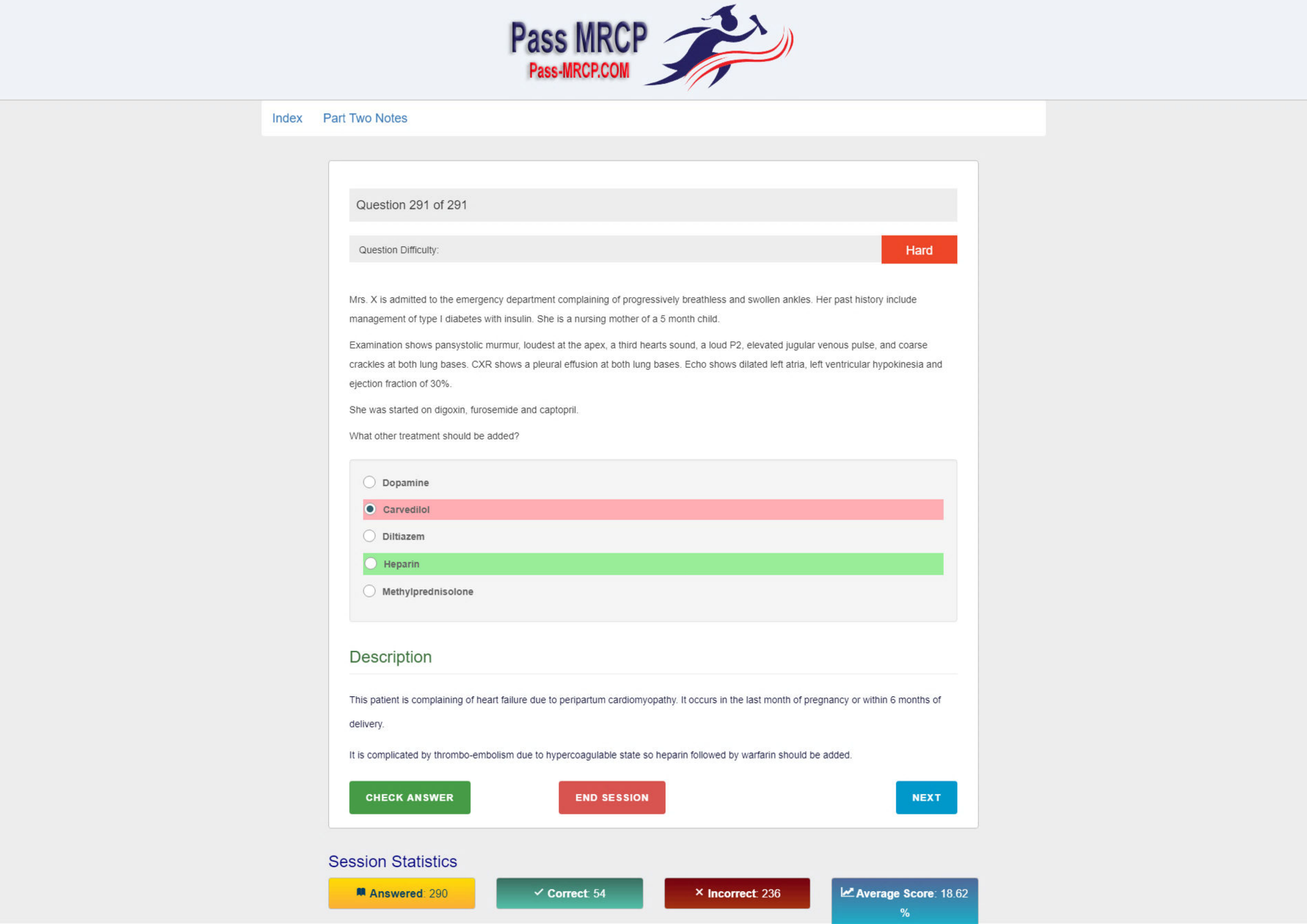
Session Statistics

Answered: 289

✓ **Correct**: 54

× **Incorrect**: 235

Average Score: 18.69 %



Question 291 of 291

Question Difficulty: Hard

Mrs. X is admitted to the emergency department complaining of progressively breathless and swollen ankles. Her past history include management of type I diabetes with insulin. She is a nursing mother of a 5 month child.

Examination shows pansystolic murmur, loudest at the apex, a third hearts sound, a loud P2, elevated jugular venous pulse, and coarse crackles at both lung bases. CXR shows a pleural effusion at both lung bases. Echo shows dilated left atria, left ventricular hypokinesia and ejection fraction of 30%.

She was started on digoxin, furosemide and captopril.

What other treatment should be added?

○ Dopamine
● Carvedilol
○ Diltiazem
○ Heparin
○ Methylprednisolone

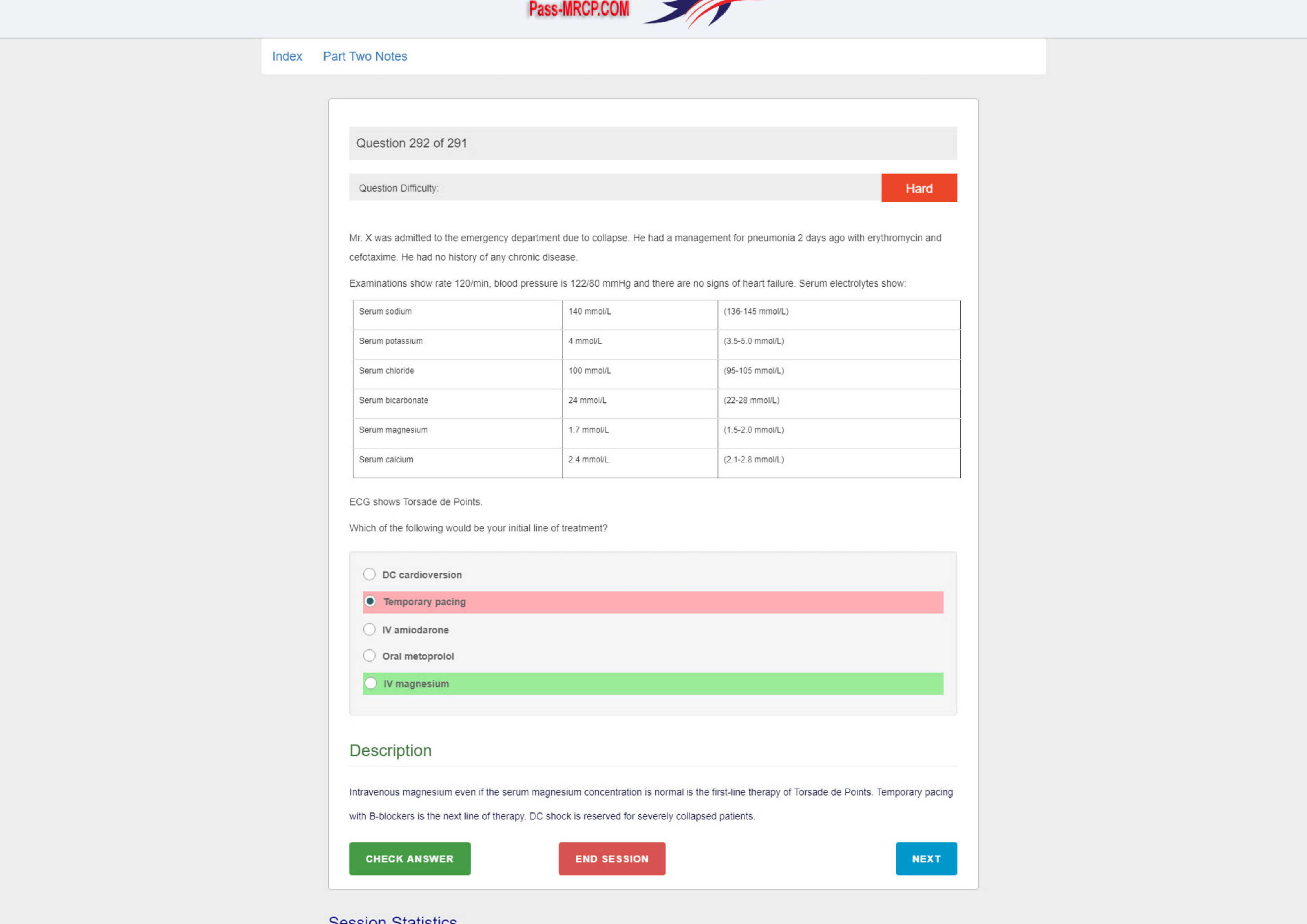
Description

This patient is complaining of heart failure due to peripartum cardiomyopathy. It occurs in the last month of pregnancy or within 6 months of delivery.

It is complicated by thrombo-embolism due to hypercoagulable state so heparin followed by warfarin should be added.

Session Statistics

Answered: 290
✓ Correct: 54
✕ Incorrect: 236
Average Score: 18.62 %



Question 292 of 291

Question Difficulty: **Hard**

Mr. X was admitted to the emergency department due to collapse. He had a management for pneumonia 2 days ago with erythromycin and cefotaxime. He had no history of any chronic disease.

Examinations show rate 120/min, blood pressure is 122/80 mmHg and there are no signs of heart failure. Serum electrolytes show:

Serum sodium	140 mmol/L	(136-145 mmol/L)
Serum potassium	4 mmol/L	(3.5-5.0 mmol/L)
Serum chloride	100 mmol/L	(95-105 mmol/L)
Serum bicarbonate	24 mmol/L	(22-28 mmol/L)
Serum magnesium	1.7 mmol/L	(1.5-2.0 mmol/L)
Serum calcium	2.4 mmol/L	(2.1-2.8 mmol/L)

ECG shows Torsade de Points.

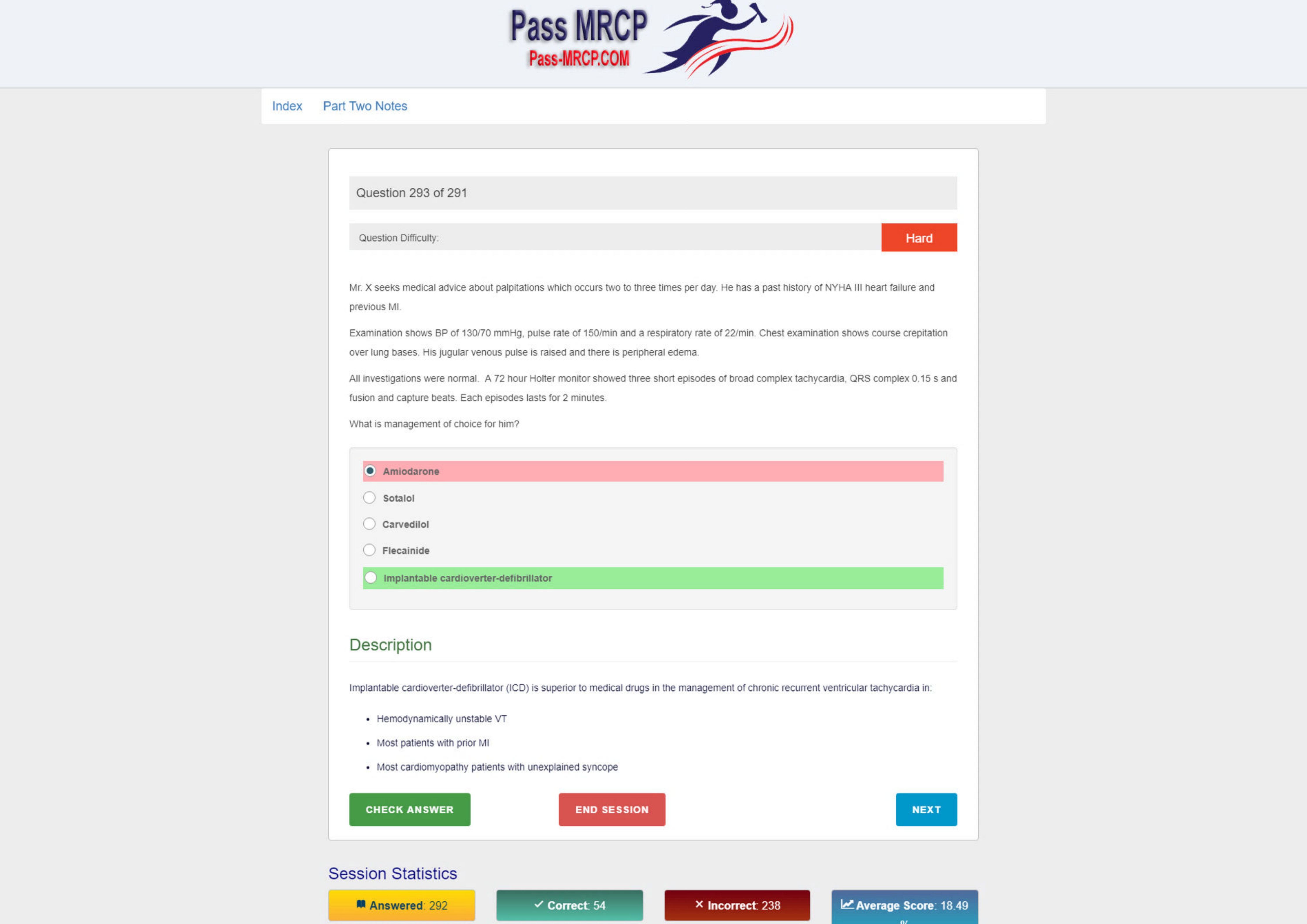
Which of the following would be your initial line of treatment?

- ○ **DC cardioversion**
- ● **Temporary pacing**
- ○ **IV amiodarone**
- ○ **Oral metoprolol**
- ○ **IV magnesium**

Description

Intravenous magnesium even if the serum magnesium concentration is normal is the first-line therapy of Torsade de Points. Temporary pacing with B-blockers is the next line of therapy. DC shock is reserved for severely collapsed patients.

Session Statistics



Question 293 of 291

Question Difficulty: **Hard**

Mr. X seeks medical advice about palpitations which occurs two to three times per day. He has a past history of NYHA III heart failure and previous MI.

Examination shows BP of 130/70 mmHg, pulse rate of 150/min and a respiratory rate of 22/min. Chest examination shows course crepitation over lung bases. His jugular venous pulse is raised and there is peripheral edema.

All investigations were normal. A 72 hour Holter monitor showed three short episodes of broad complex tachycardia, QRS complex 0.15 s and fusion and capture beats. Each episodes lasts for 2 minutes.

What is management of choice for him?

● **Amiodarone**
○ **Sotalol**
○ **Carvedilol**
○ **Flecainide**
○ **Implantable cardioverter-defibrillator**

Description

Implantable cardioverter-defibrillator (ICD) is superior to medical drugs in the management of chronic recurrent ventricular tachycardia in:

- Hemodynamically unstable VT
- Most patients with prior MI
- Most cardiomyopathy patients with unexplained syncope

Session Statistics

Answered: 292
Correct: 54
Incorrect: 238
Average Score: 18.49

Question 294 of 291

Question Difficulty: Hard

Mr. X was admitted to the ICU complaining of acute on top of chronic heart failure. Physical examination shows BP of 175/95 mmHg, a raised JVP, peripheral edema and bilateral pulmonary crepitation. Investigations show:

Serum sodium	142 mmol/L	(136-145 mmol/L)
Serum potassium	4.2 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	96 µmol/L	(53-106 µmol/L)

He was started on furosemide 40mg on bolus and 20 mg every 2 hours. 6 hours later his dyspnea increased and urine output drops. Investigations show:

Serum sodium	125 mmol/L	(136-145 mmol/L)
Serum potassium	5.5 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	140 µmol/L	(53-106 µmol/L)

His furosemide was stopped with monitoring but he did not show any improvement of symptoms, Serum sodium is 125 mmol/L.

What should be offered for his hyponatremia?

He was started on furosemide 40mg on bolus and 20 mg every 2 hours. 6 hours later his dyspnea increased and urine output drops. Investigations show:

Serum sodium	125 mmol/L	(136-145 mmol/L)
Serum potassium	5.5 mmol/L	(3.5-5.0 mmol/L)
Serum creatinine	140 µmol/L	(53-106 µmol/L)

His furosemide was stopped with monitoring but he did not show any improvement of symptoms, Serum sodium is 125 mmol/L.

What should be offered for his hyponatremia?

- ● **Restart furosemide and continue monitoring**
- ○ **Start dopamine**
- ○ **Start fluid restriction**
- ○ **Add ramipril**
- ○ **Start normal saline infusion**

Description

Diuretics such as furosemide are first line management of acute heart failure. In this case renal failure develops may be due to nephrotoxicity or volume depletion. Diuretics should be stopped and continue monitoring and if it fails; fluid restriction should be started.

Normal saline infusion would worsen renal failure and heart failure. It is only indicated is if there is neurological manifestation of hyponatremia.

CHECK ANSWER END SESSION NEXT

Session Statistics

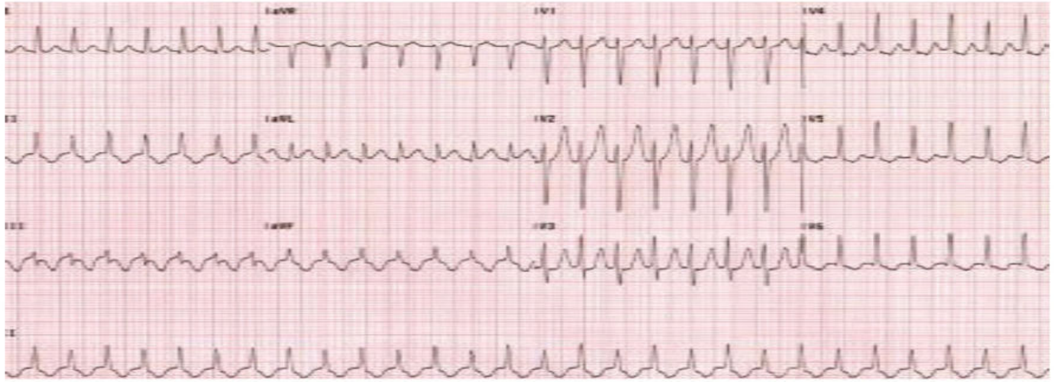
Answered: 293 ✓ **Correct**: 54 ✕ **Incorrect**: 239 **Average Score**: 18.43 %

Question 295 of 291

Question Difficulty: **Hard**

Mr. X was presented with awareness of rapid heart action which lasts 2 minutes. He had similar condition many times previously but all lasts for seconds. He has no past medical history except he is alcohol addict.

Examinations show regular tachycardia of 220/min, blood pressure of 130/80mmHg. ECG is shown in the image.



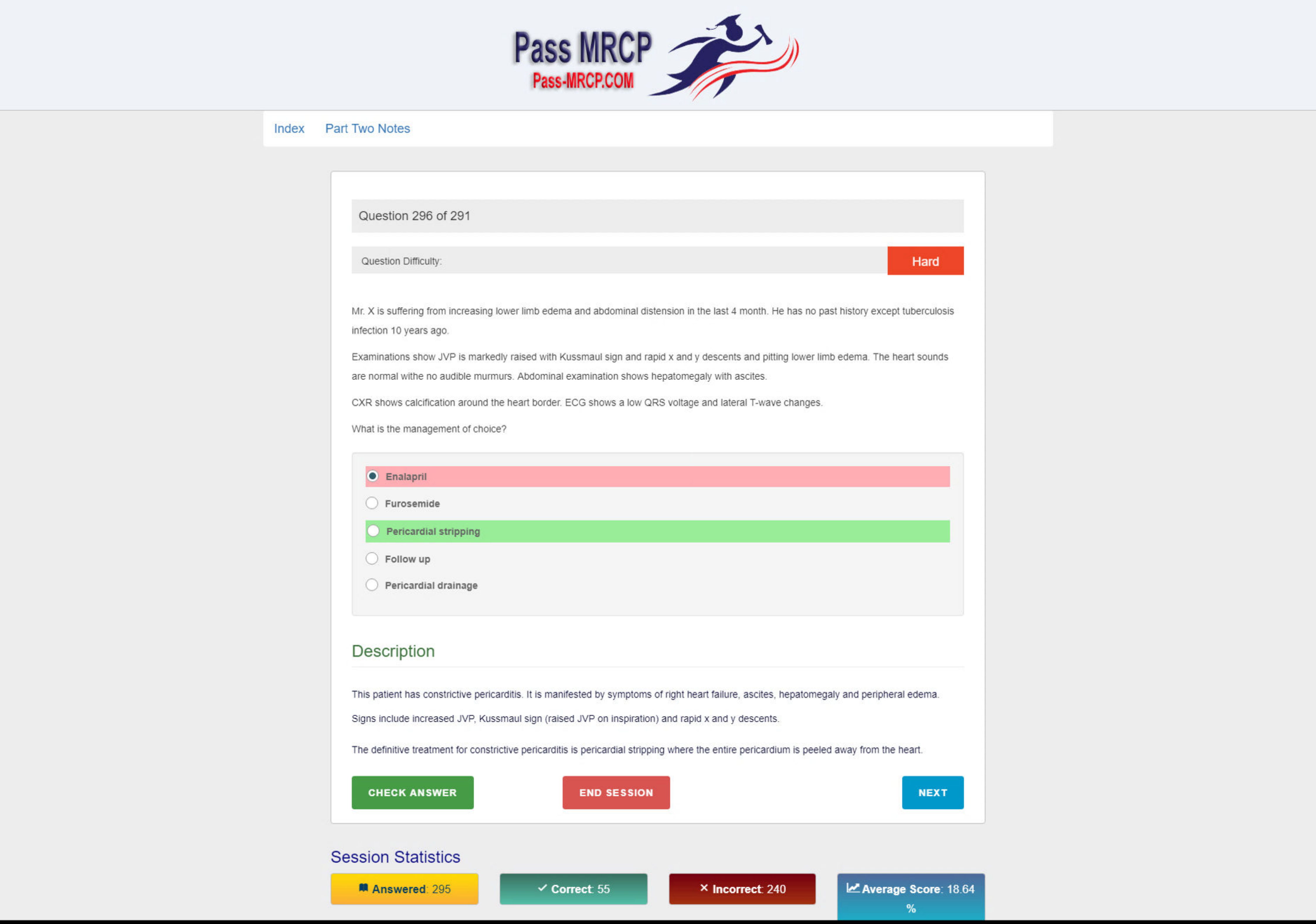
Which of the following is the most likely diagnosis?

- ● **Paroxysmal Supraventricular Tachycardia**
- ○ **Paroxysmal Atrial Fibrillation**
- ○ **Paroxysmal Ventricular Fibrillation**
- ○ **Torsades de Pointes**
- ○ **Supraventricular ectopics**

Description

The ECG shows a narrow complex tachycardia with conducted all p waves. The history of a regular fast tachycardia with no history or structural heart disease and the ECG findings makes the most likely diagnosis an SVT.

CHECK ANSWER END SESSION NEXT



Question 296 of 291

Question Difficulty: Hard

Mr. X is suffering from increasing lower limb edema and abdominal distension in the last 4 month. He has no past history except tuberculosis infection 10 years ago.

Examinations show JVP is markedly raised with Kussmaul sign and rapid x and y descents and pitting lower limb edema. The heart sounds are normal withe no audible murmurs. Abdominal examination shows hepatomegaly with ascites.

CXR shows calcification around the heart border. ECG shows a low QRS voltage and lateral T-wave changes.

What is the management of choice?

- ● Enalapril
- ○ Furosemide
- ○ Pericardial stripping
- ○ Follow up
- ○ Pericardial drainage

Description

This patient has constrictive pericarditis. It is manifested by symptoms of right heart failure, ascites, hepatomegaly and peripheral edema.

Signs include increased JVP, Kussmaul sign (raised JVP on inspiration) and rapid x and y descents.

The definitive treatment for constrictive pericarditis is pericardial stripping where the entire pericardium is peeled away from the heart.

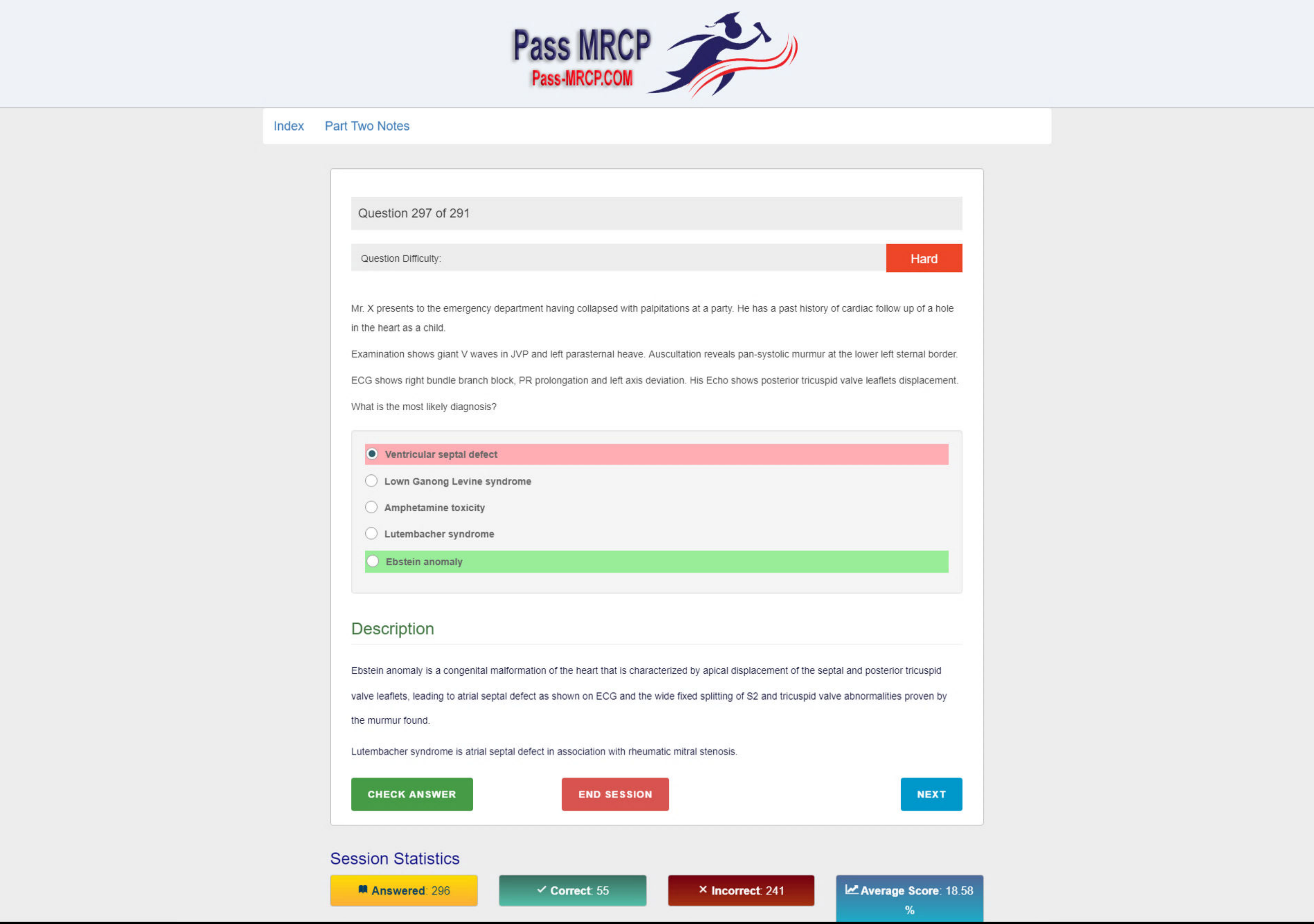
Session Statistics

Answered: 295

✓ Correct: 55

✕ Incorrect: 240

Average Score: 18.64 %



Question 297 of 291

Question Difficulty: **Hard**

Mr. X presents to the emergency department having collapsed with palpitations at a party. He has a past history of cardiac follow up of a hole in the heart as a child.

Examination shows giant V waves in JVP and left parasternal heave. Auscultation reveals pan-systolic murmur at the lower left sternal border.

ECG shows right bundle branch block, PR prolongation and left axis deviation. His Echo shows posterior tricuspid valve leaflets displacement.

What is the most likely diagnosis?

- ● **Ventricular septal defect**
- ○ **Lown Ganong Levine syndrome**
- ○ **Amphetamine toxicity**
- ○ **Lutembacher syndrome**
- ○ **Ebstein anomaly**

Description

Ebstein anomaly is a congenital malformation of the heart that is characterized by apical displacement of the septal and posterior tricuspid valve leaflets, leading to atrial septal defect as shown on ECG and the wide fixed splitting of S2 and tricuspid valve abnormalities proven by the murmur found.

Lutembacher syndrome is atrial septal defect in association with rheumatic mitral stenosis.

Session Statistics

Answered: 296

✓ **Correct**: 55

✕ **Incorrect**: 241

Average Score: 18.58 %